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9/93

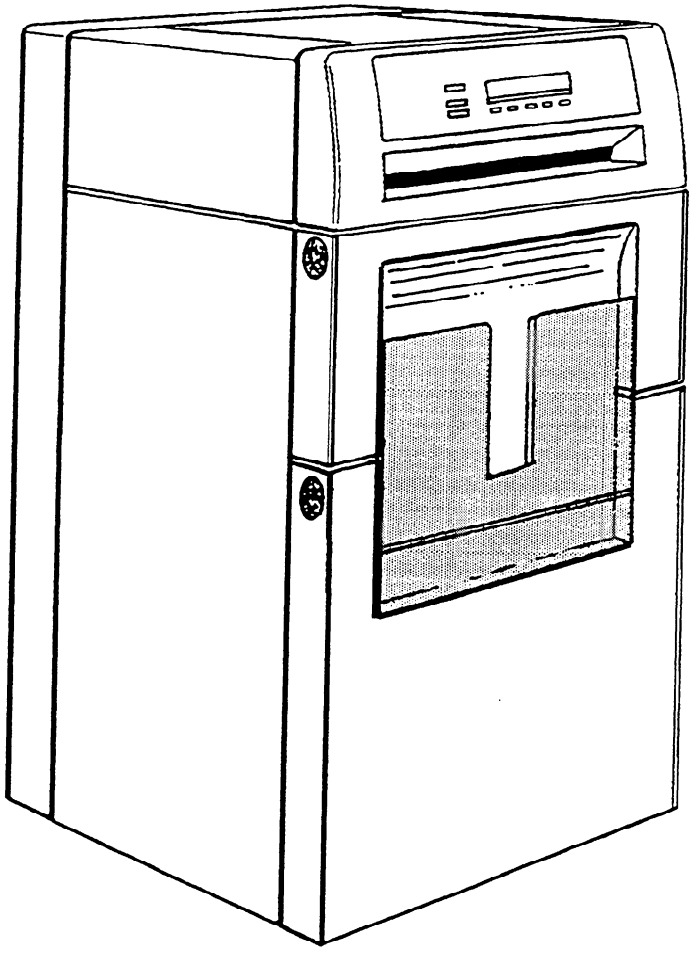
SUPERSEDES WD 3058-2
5/91

WIRING DIAGRAMS

for the

Kodak X-Omat MULTILOADER 300

with the *KODAK XML300* DARKROOM FILM FEEDER



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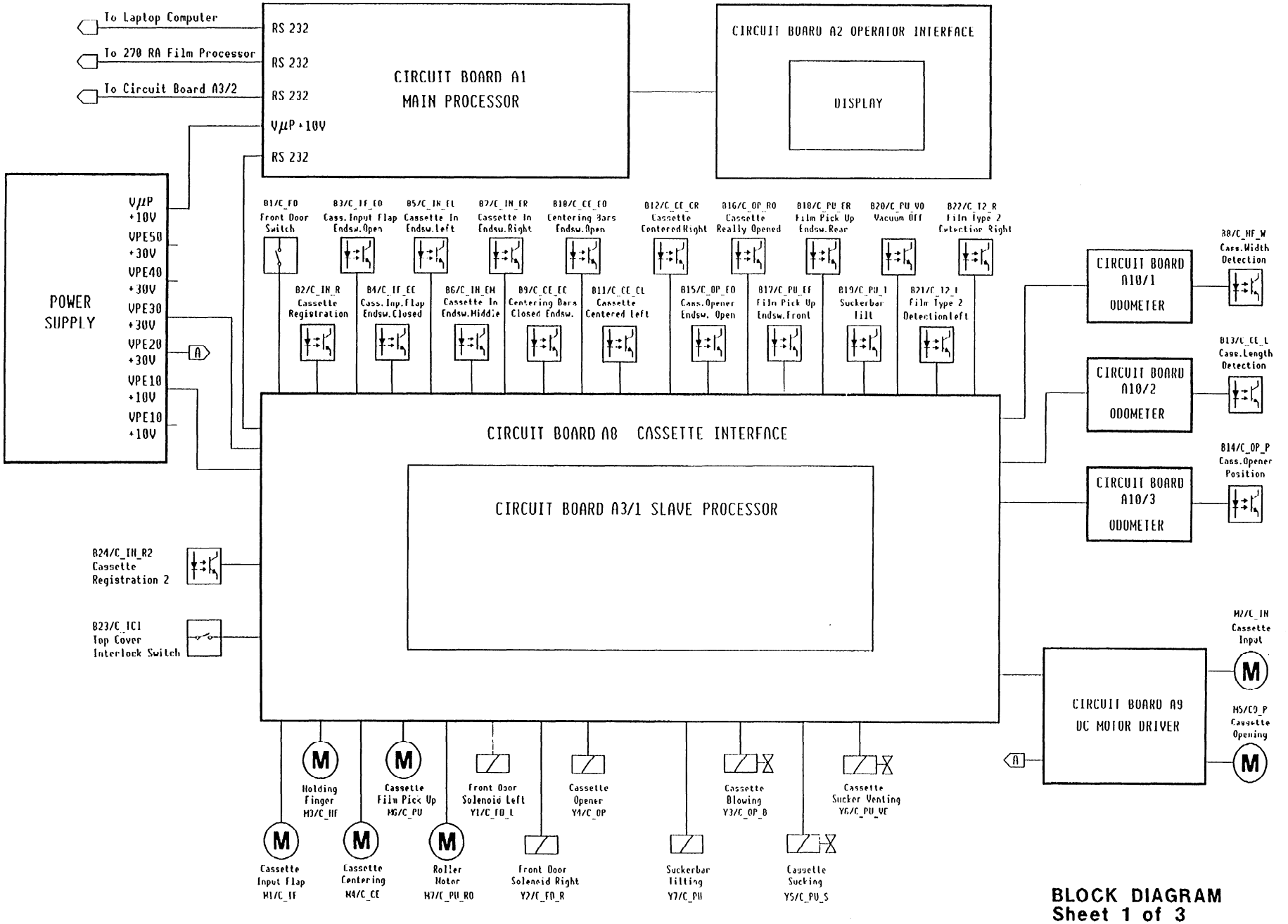
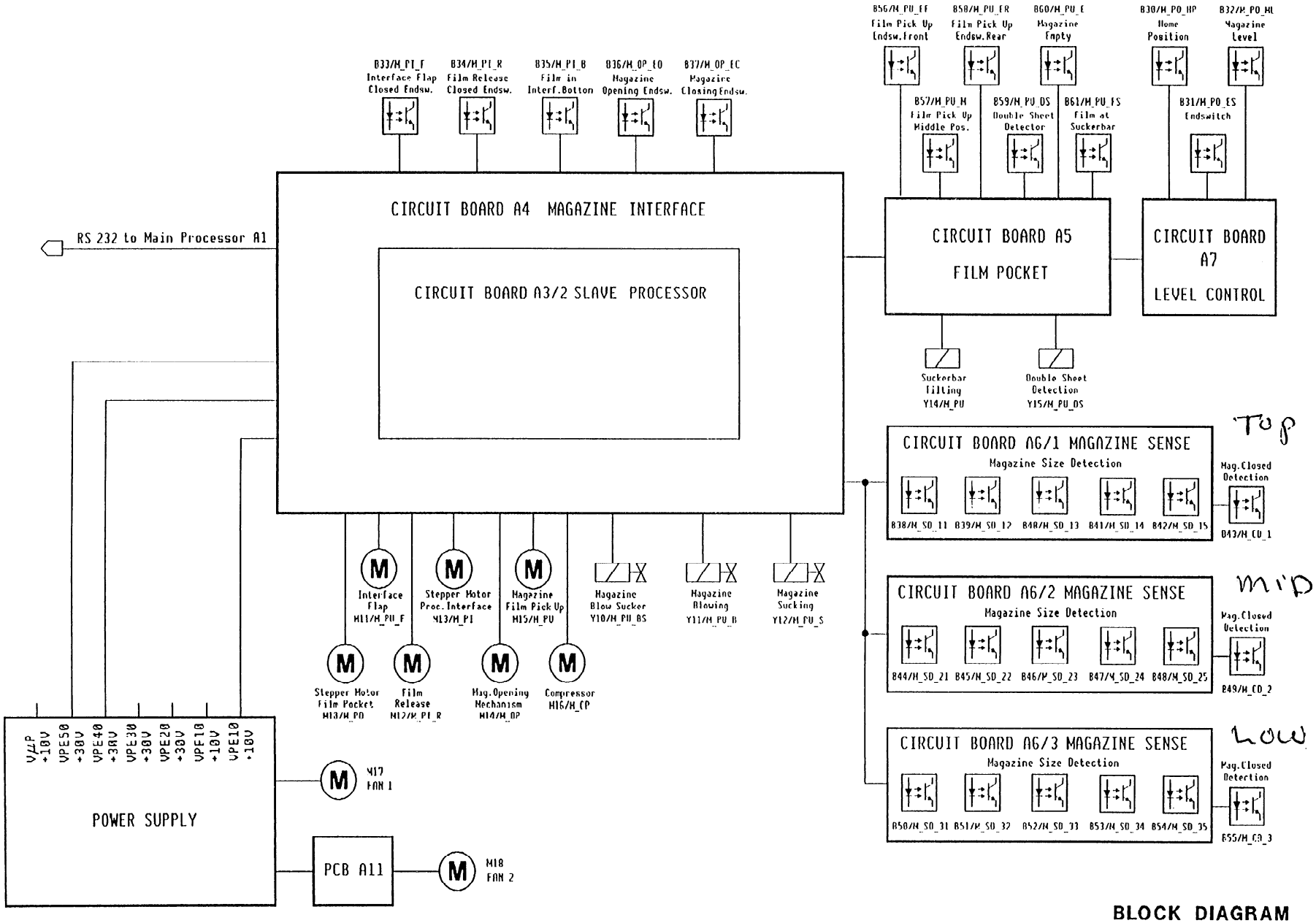
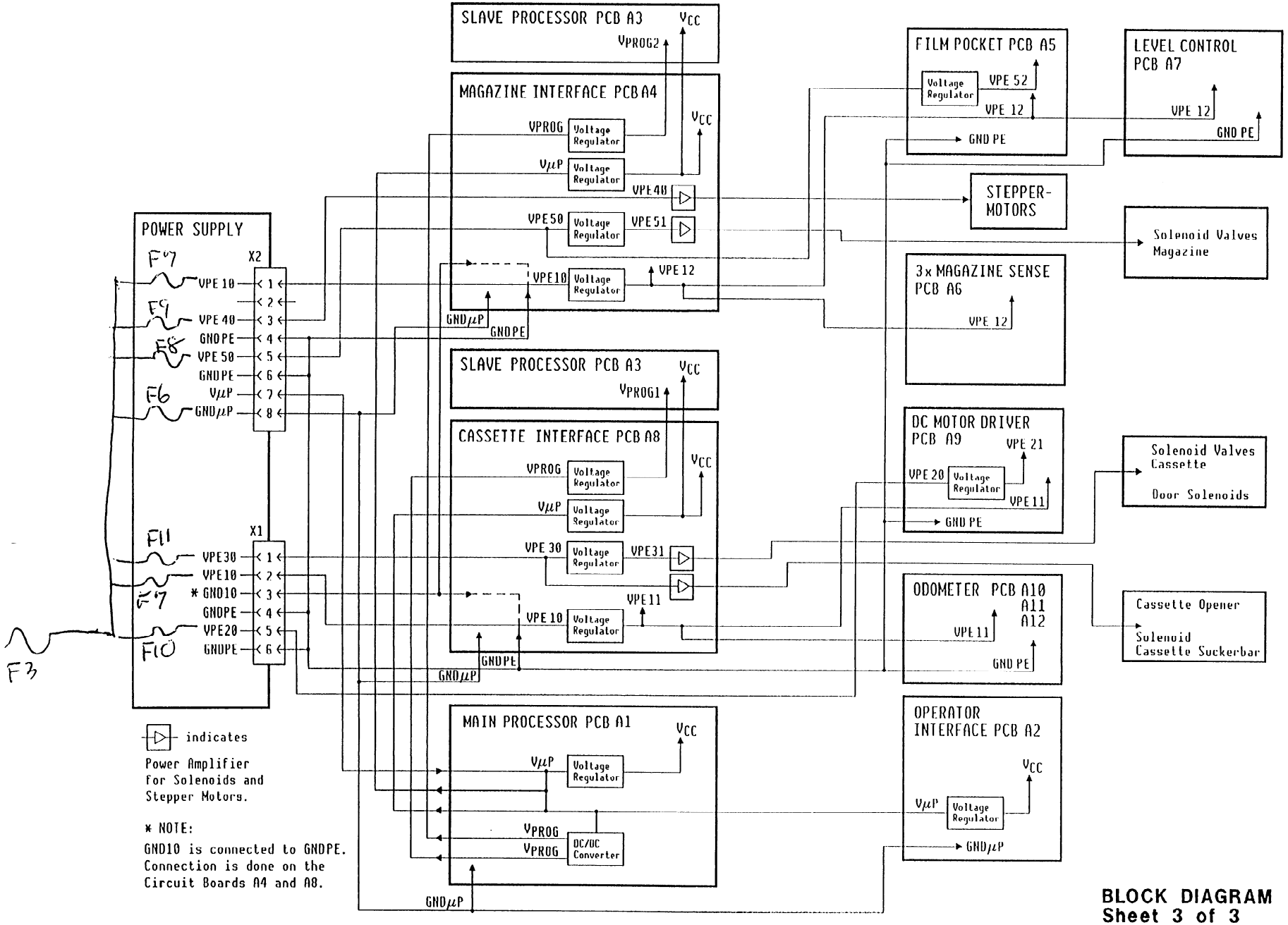


BLOCK DIAGRAM
Sheet 1 of 3
CASSETTE INTERFACE



BLOCK DIAGRAM
Sheet 2 of 3
MAGAZINE INTERFACE



BLOCK DIAGRAM
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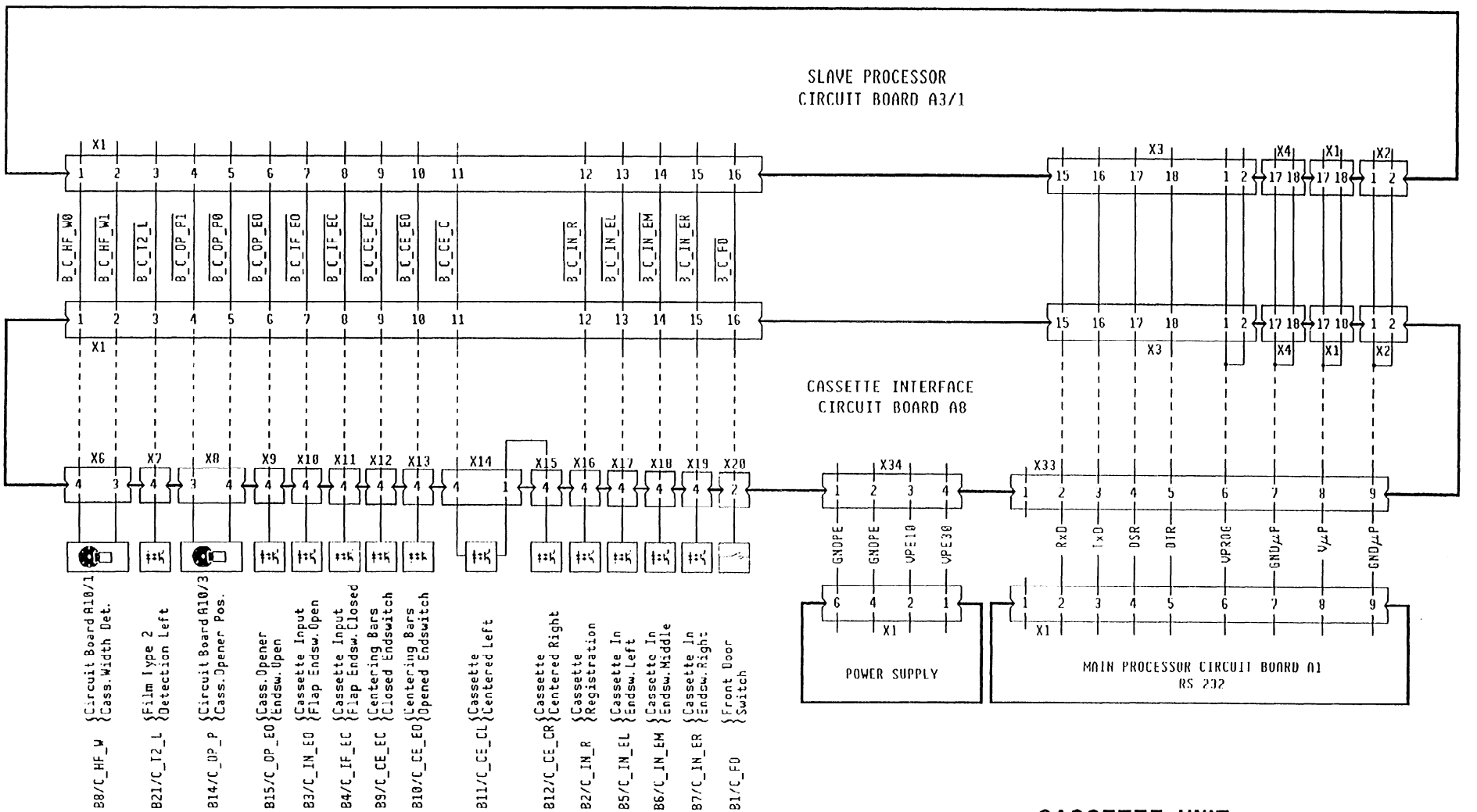
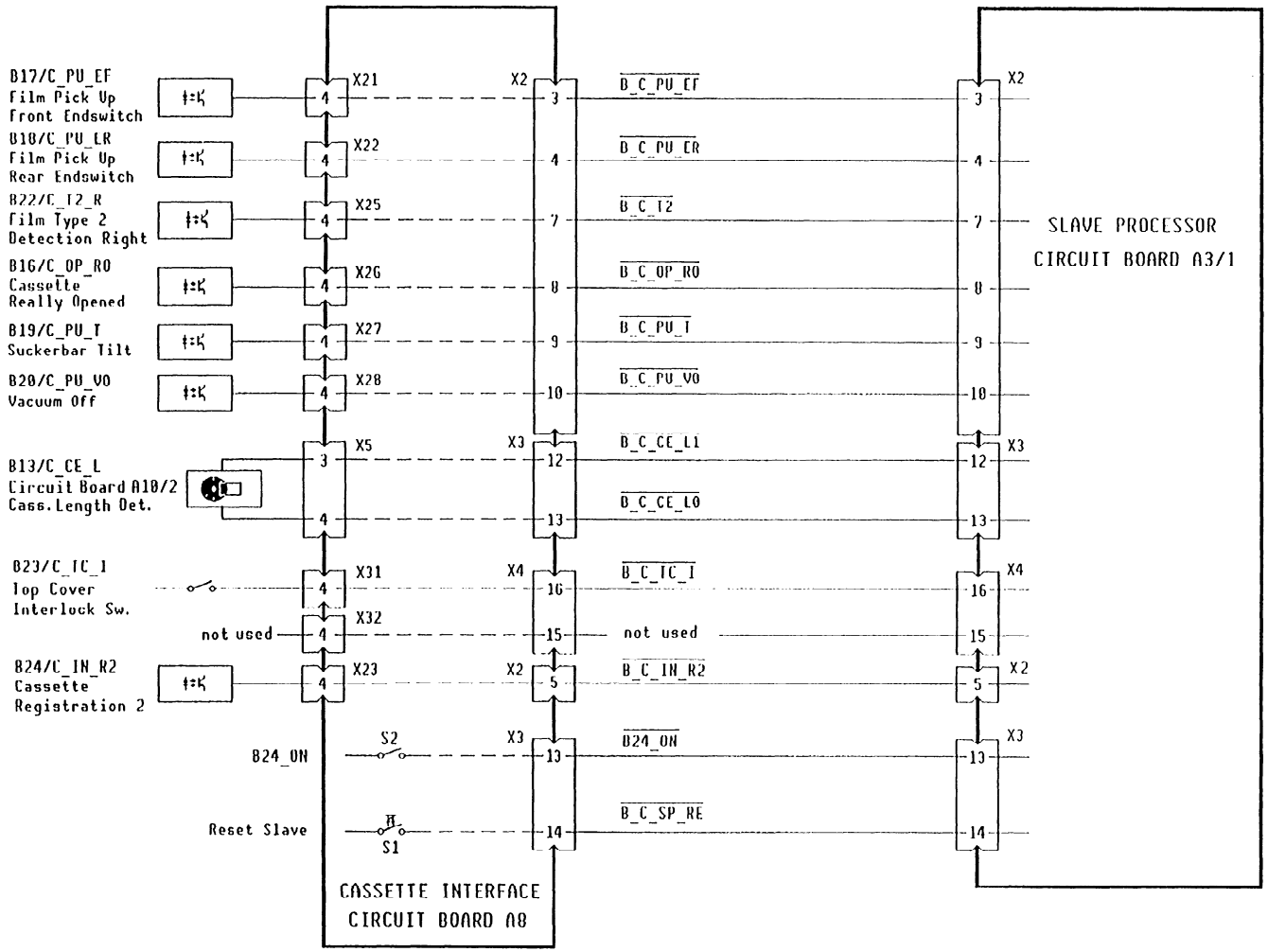
LOW VOLTAGE DISTRIBUTION

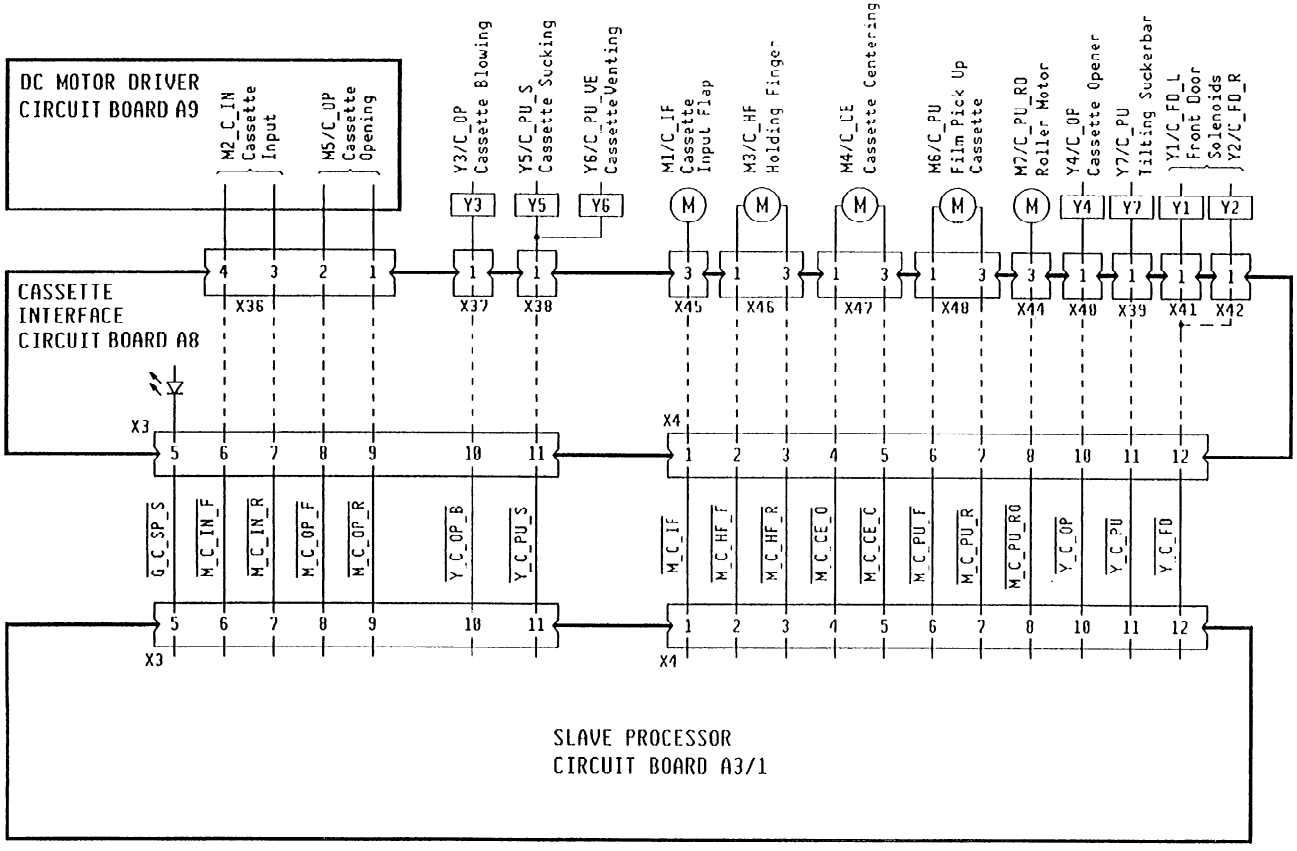
2. FUNCTIONAL DIAGRAMS



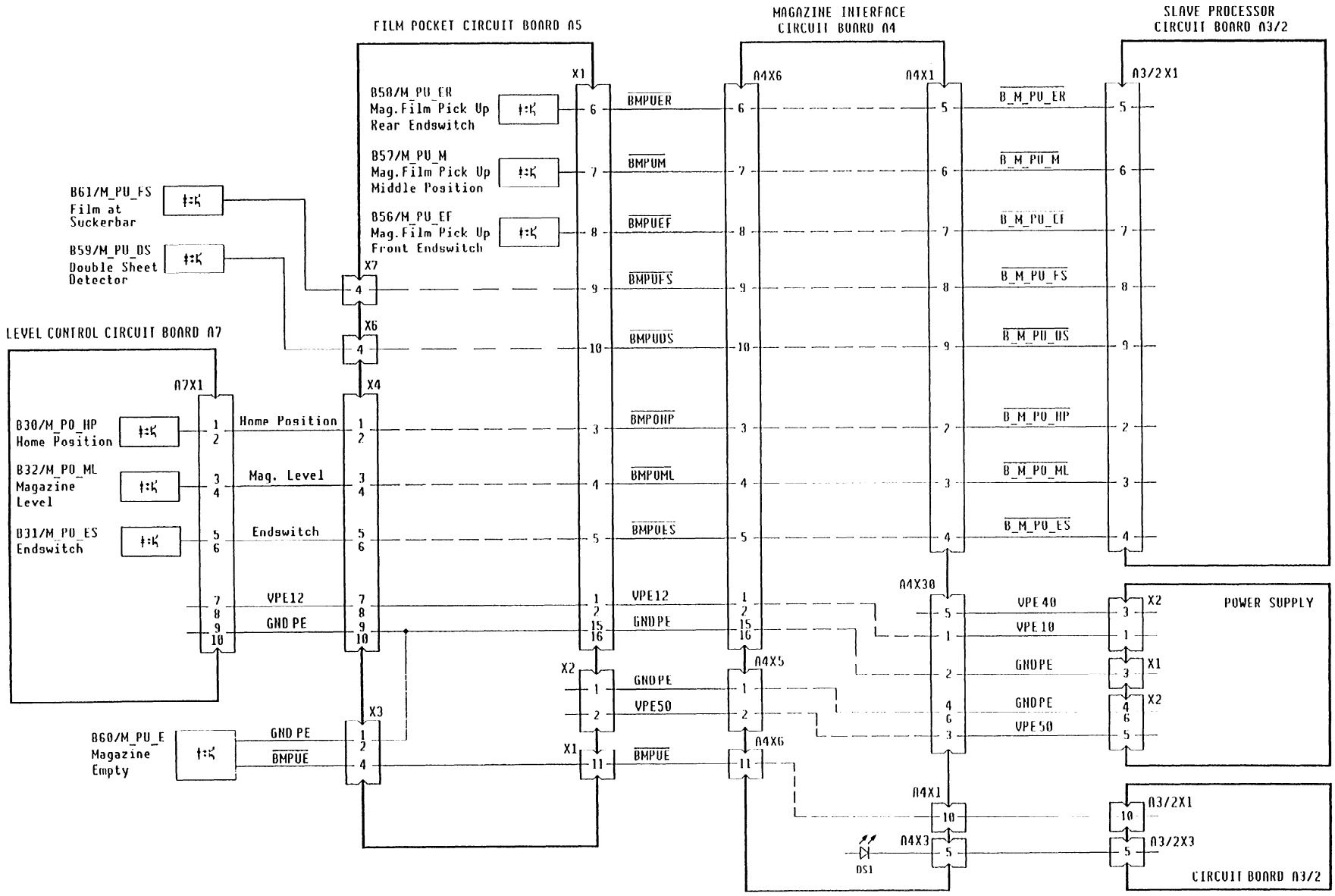
CASSETTE UNIT
Sheet 1 of 3
INPUT SECTION
POWER SUPPLY/RS232/PCB A8-A3/1



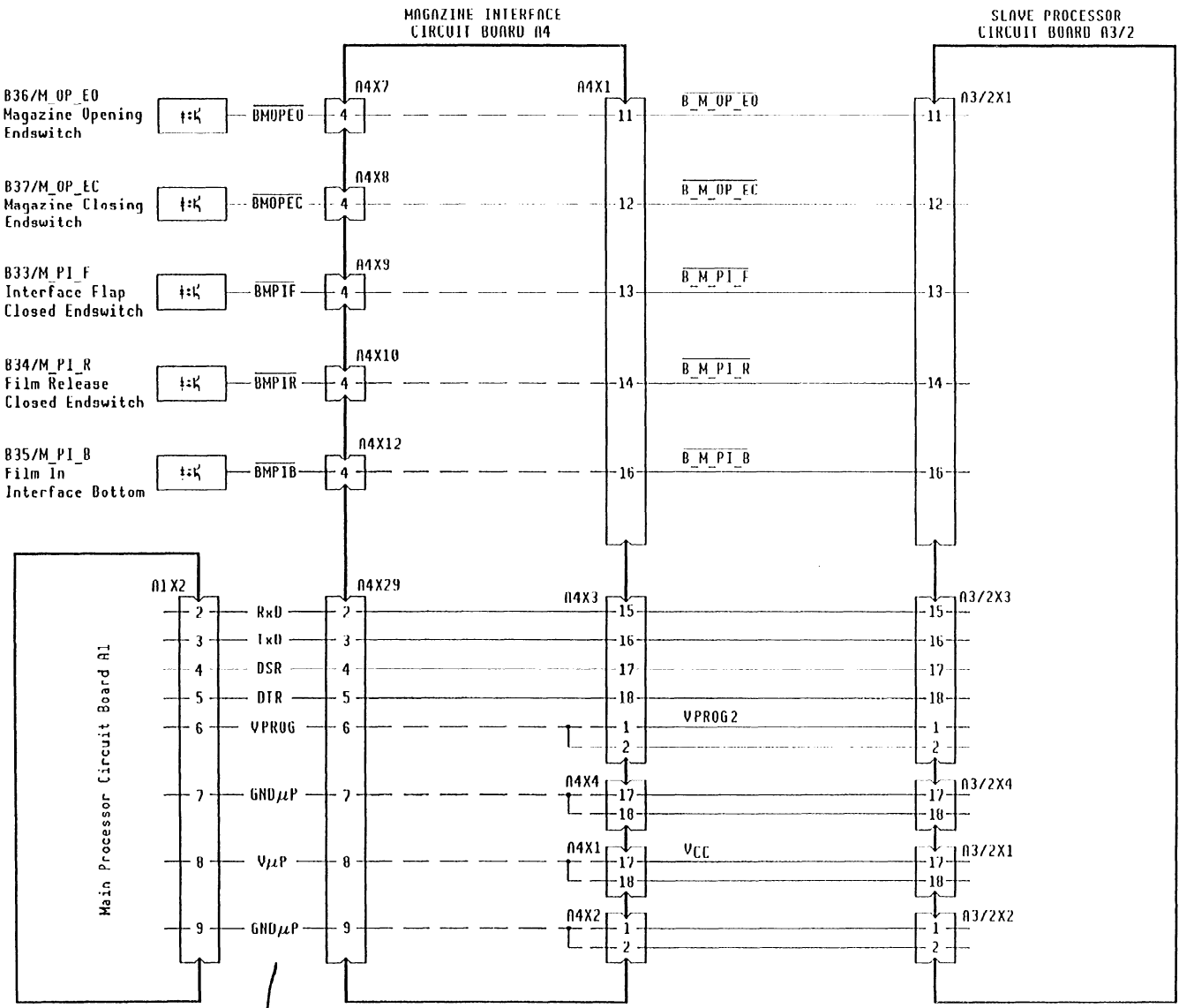
CASSETTE UNIT
Sheet 2 of 3
INPUT SECTION
PCB A8-A3/1



CASSETTE UNIT
Sheet 3 of 3
OUTPUT SECTION
PCB A3/1-PCB A8



MAGAZINE UNIT Sheet 1 of 4
INPUT SECTION PCB A7-A5-A4-A3/2



MAGAZINE UNIT
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INPUT SECTION
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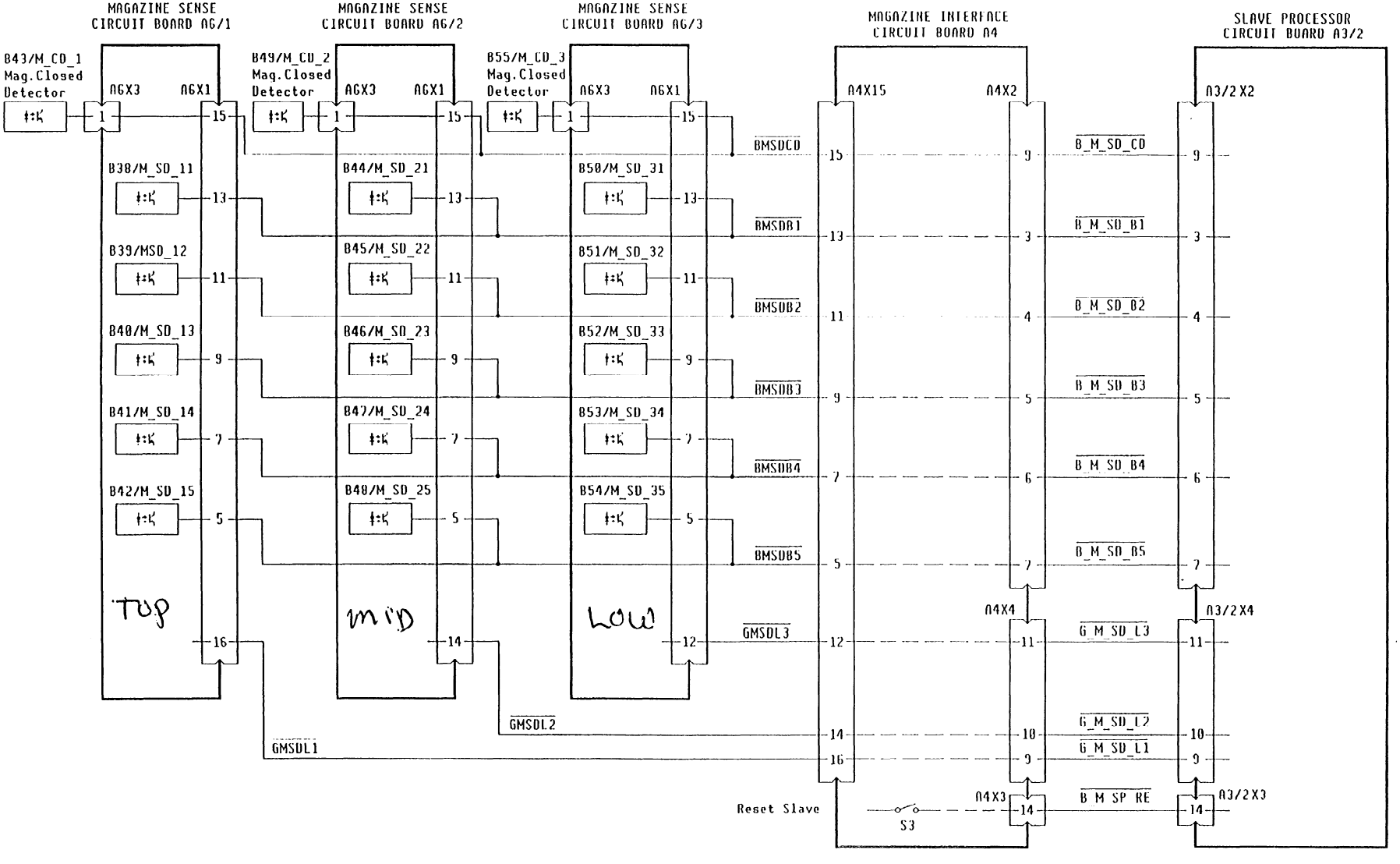

MAGAZINE UNIT
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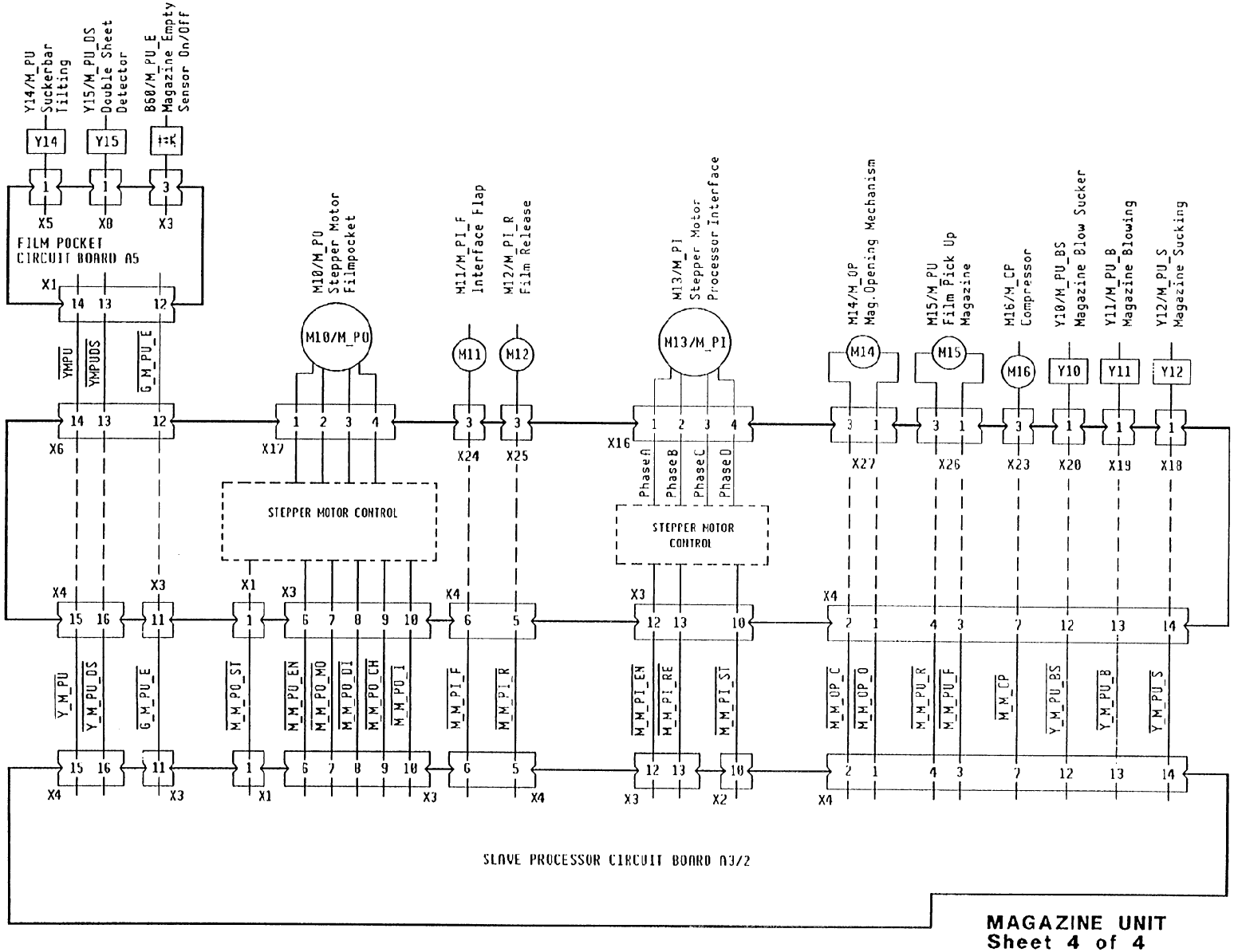
INPUT SECTION PCB A6-A4-A3/2



MAGAZINE UNIT
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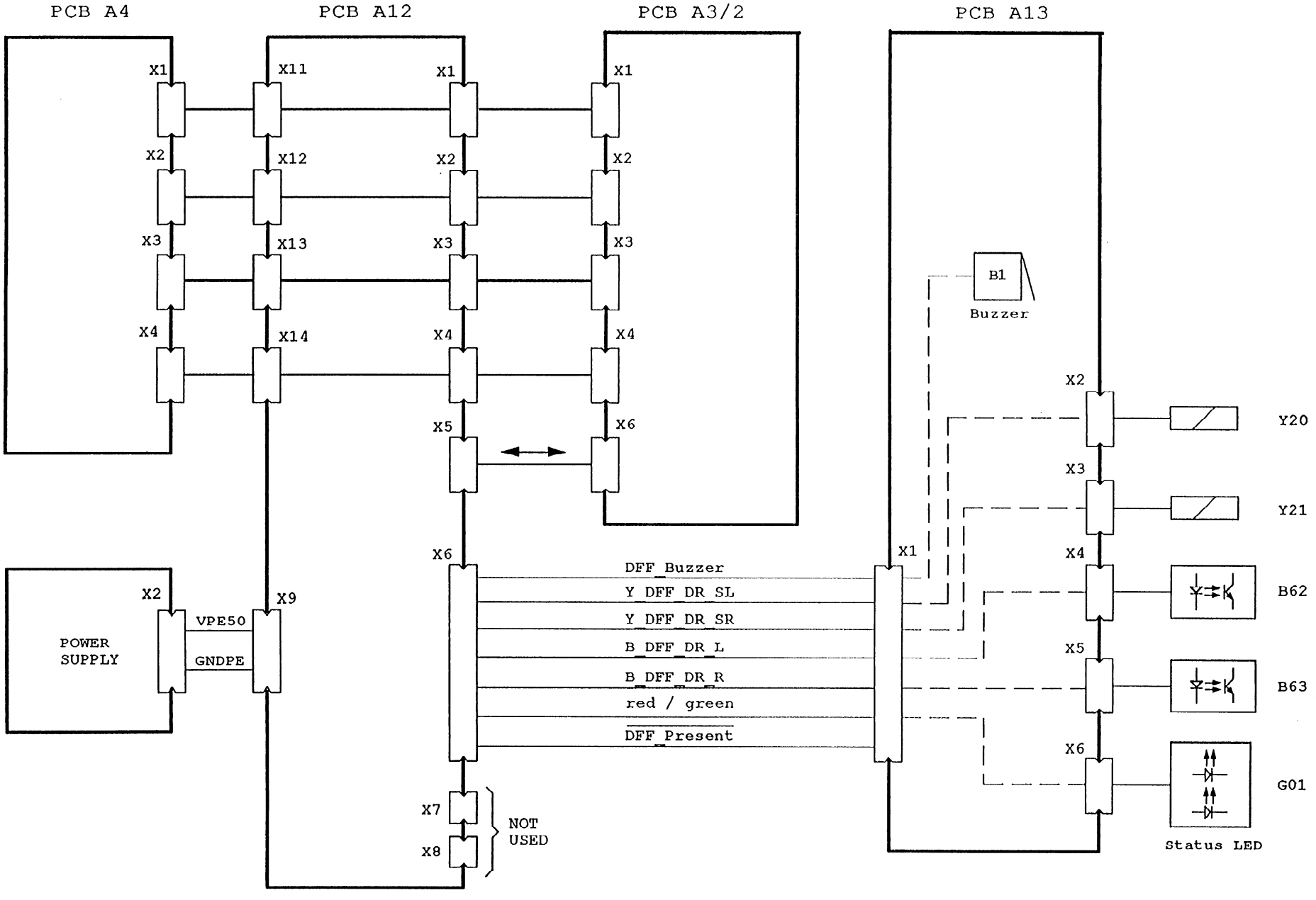
OUTPUT SECTION PCB A3/2-A4



Blockdiagram DFF

3. CIRCUIT AND WIRING DIAGRAMS

This section contains CIRCUIT DIAGRAMS and WIRING DIAGRAMS. The right-hand pages for PCB A4, PCB A8 and the POWER SUPPLY are reserved for the CIRCUIT DIAGRAMS and the left-hand pages for the corresponding WIRING DIAGRAMS.

WIRING DIAGRAMS are not given when the components this means SENSORS, MOTORS, SOLENOIDS are connected straight to the PRINTED CIRCUIT BOARD.

SWITCH SETTING OF S1-1 AND S1-2 ON PCB A1

S1-1

Normally S1-1 should be set to OFF (down). In this case some errors can only be reset with the LAP TOP (see the SERVICE MANUAL SUPPLEMENT SN>2000).

If S1-1 is set to ON (up) the following options are enabled:

1. The OPERATOR can reset the XML300 after every malfunction just by pressing the left-hand BUTTON. He can then try to start another cycle.

CAUTION

This RESET cannot solve a real hardware problem or a film jam when it tries to recover from the problem. In such a case the problem will occur again in the next cycle. This means a exposed FILM would become lost. For this reason set S1-1 only to ON if the CUSTOMER is aware of this risk and if he is willing to accept it.

2. After selecting "FUNCTION" on the OPERATOR CONTROL PANEL the following selection is displayed:

TYPE2 USAGE LANG CLEAR

When S1-1 is ON (up) an altered selection is displayed:

TYPE2 SYSTEM USAGE LANG CLEAR

SYSTEM contains the following 4 options:

TIME This gives date and time.

HISTO This gives information on the communication between the MAIN PROCESSOR PCB A1 and the SLAVE PROCESSORS PCB's A3/1, A3/2 and the 270RA PROCESSOR.

NOTE

THIS INFORMATION CAN ONLY BE ANALYSED IN THE FACTORY.

3. An additional option is enabled in the ERROR MENU.

CLEAR [ ] **CODE** **RETURN**

In case of an error (this means the red error lamp is on), the second key from the left is enabled. If it becomes pressed the history of the last faulty cycle is given and the following line is displayed.

⇑ ⇓ **RETURN**

With the ARROW KEYS you can scroll through the history.

NOTE

THIS INFORMATION CAN ONLY BE ANALYSED BY THE FACTORY. When a history diskette is made, this information is automatically copied to the diskette, no matter if S1-1 is on or off.

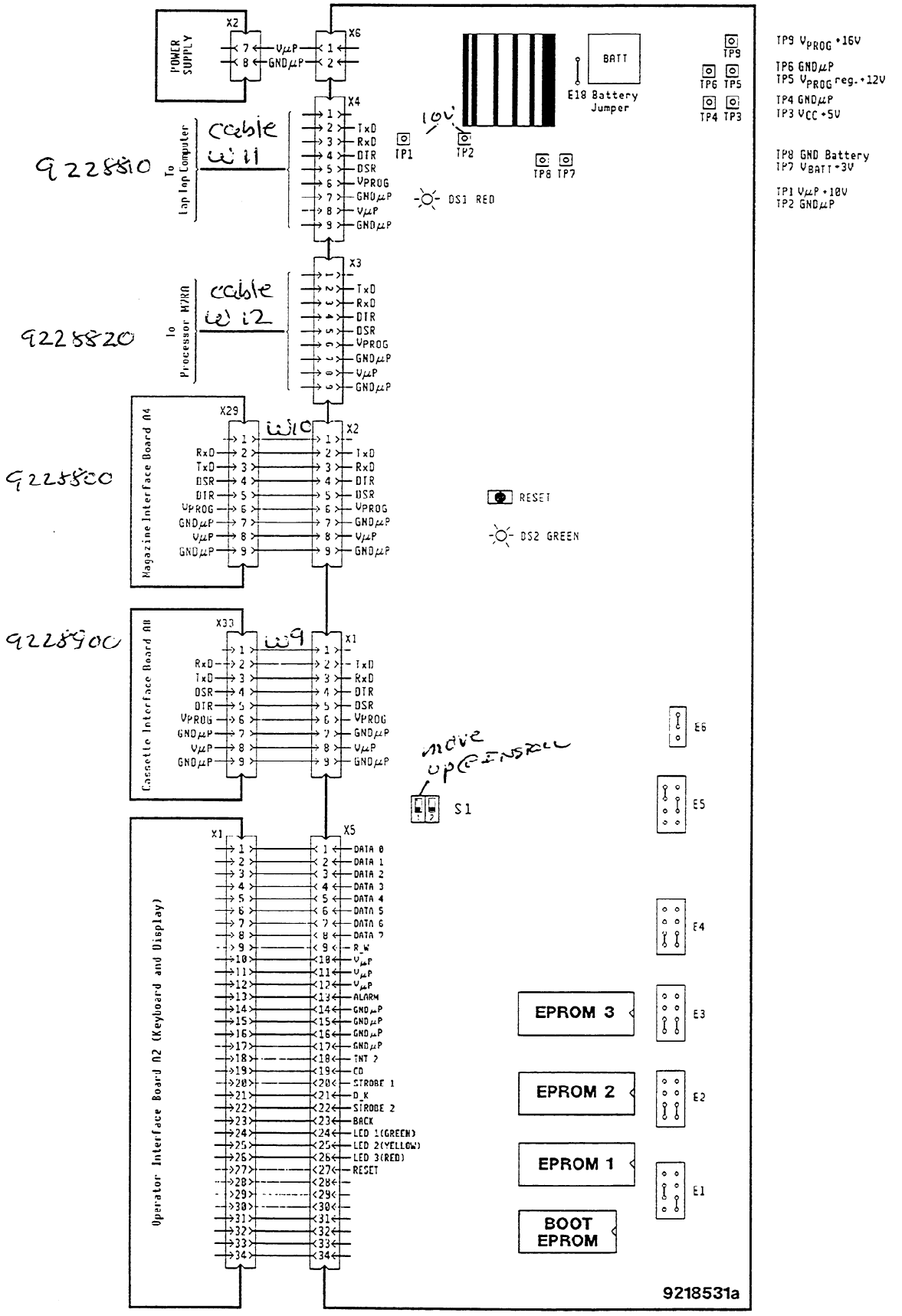
S1-2

NORMALLY S1-2 SHOULD BE SET TO OFF (DOWN). IF IT IS SET TO ON (UP) THE FOLLOWING OPTION IS ENABLED:

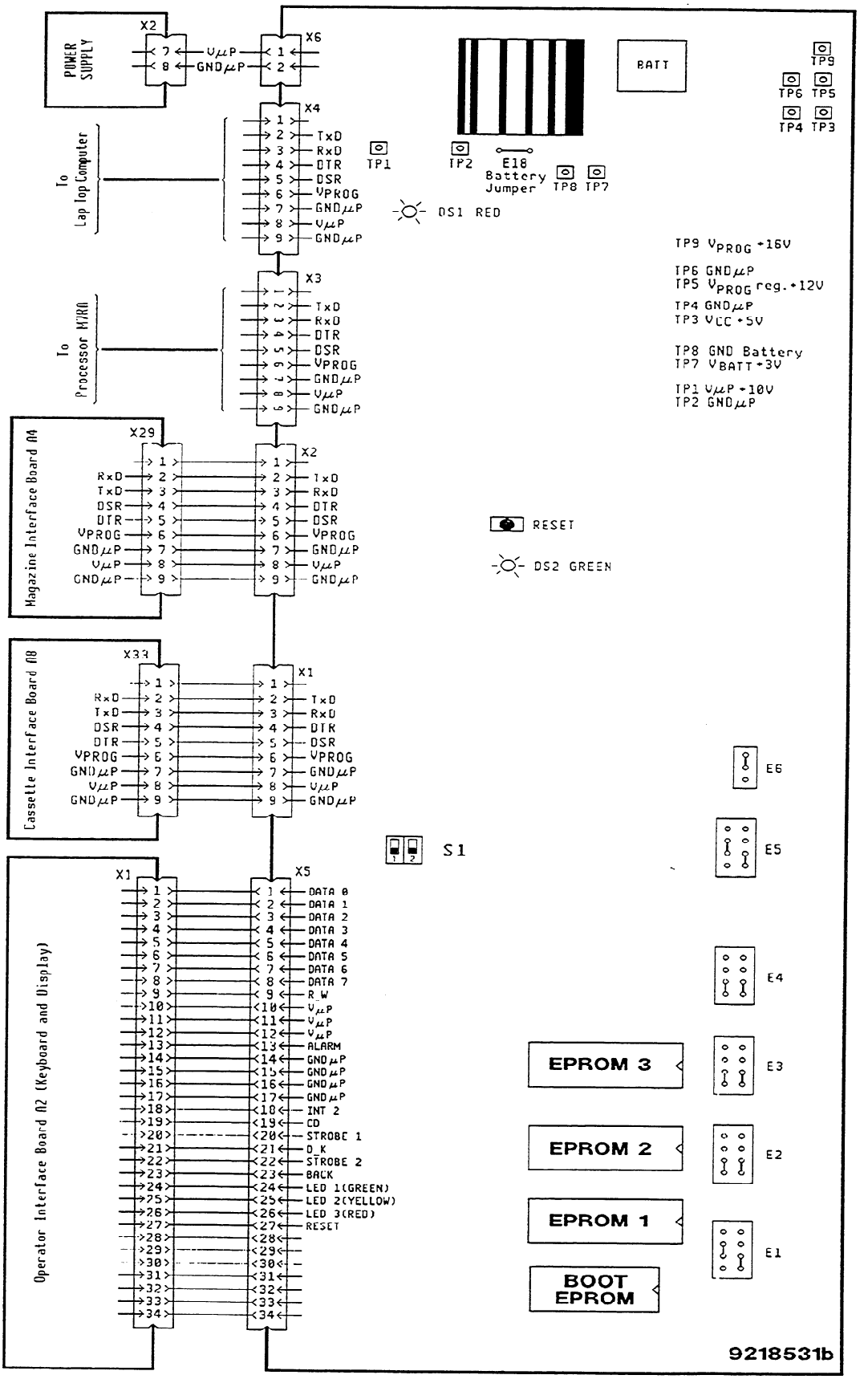
The XML300 is running while the 270RA PROCESSOR is turned off. After power up an error message is displayed and can be overridden by pressing CLEAR. From this moment on the turned off PROCESSOR will be ignored.

CAUTION

Do not leave S1-2 in the up position. The CUSTOMER could lose exposed films if for any reason the 270RA PROCESSOR is switched off. Use S1-2 in the up position for trouble shooting only.

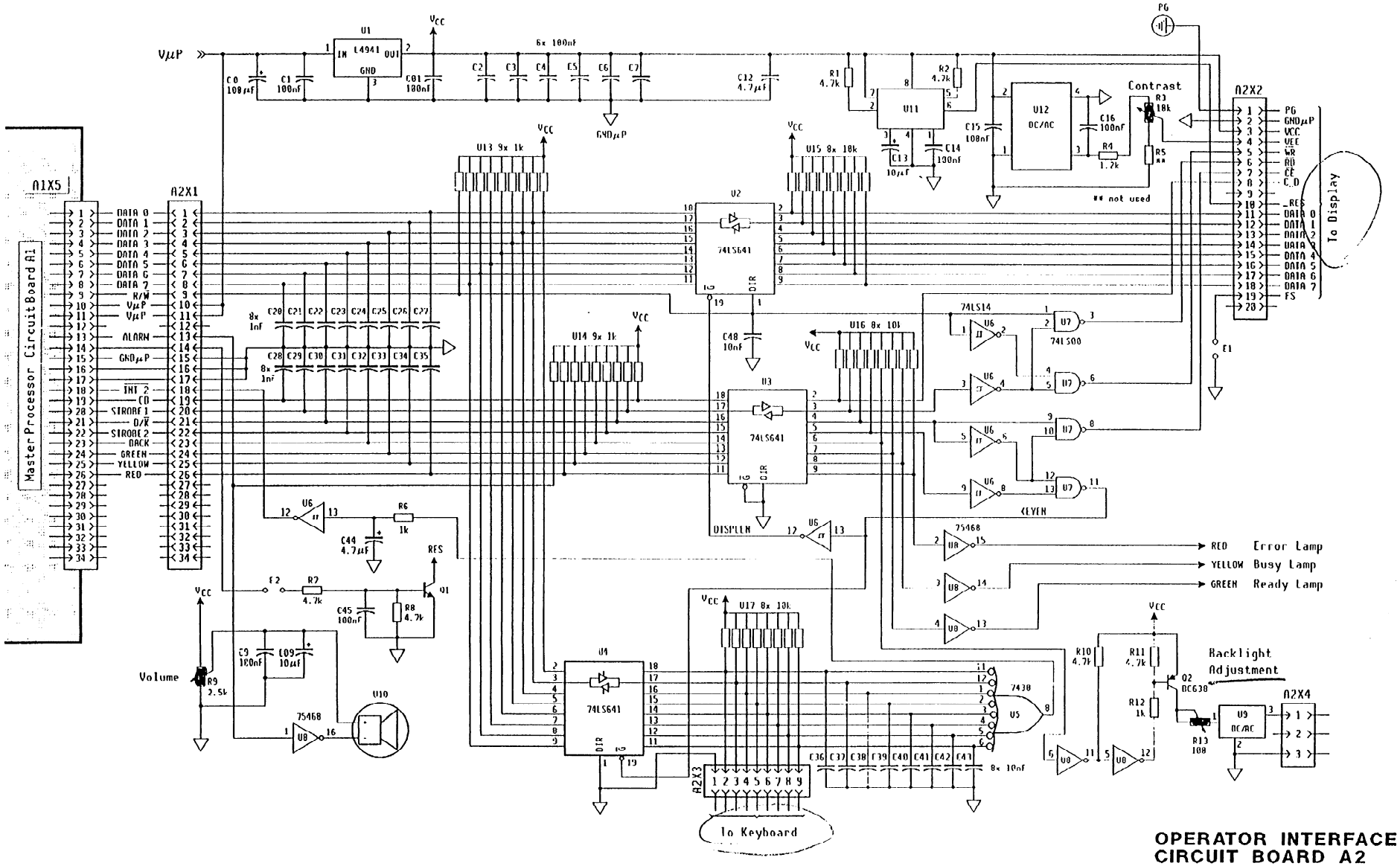


OLD VERSION
MAIN PROCESSOR CIRCUIT BOARD A1

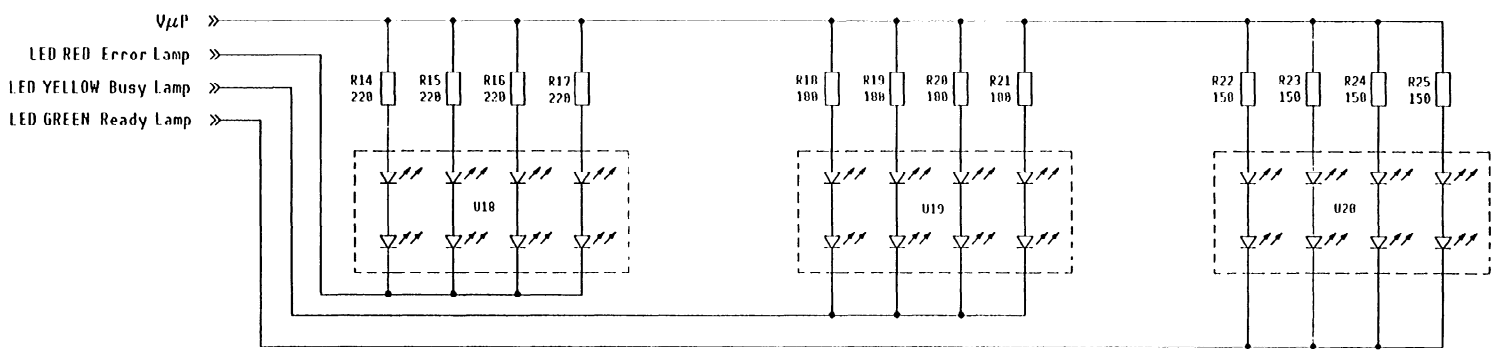


NEW VERSION

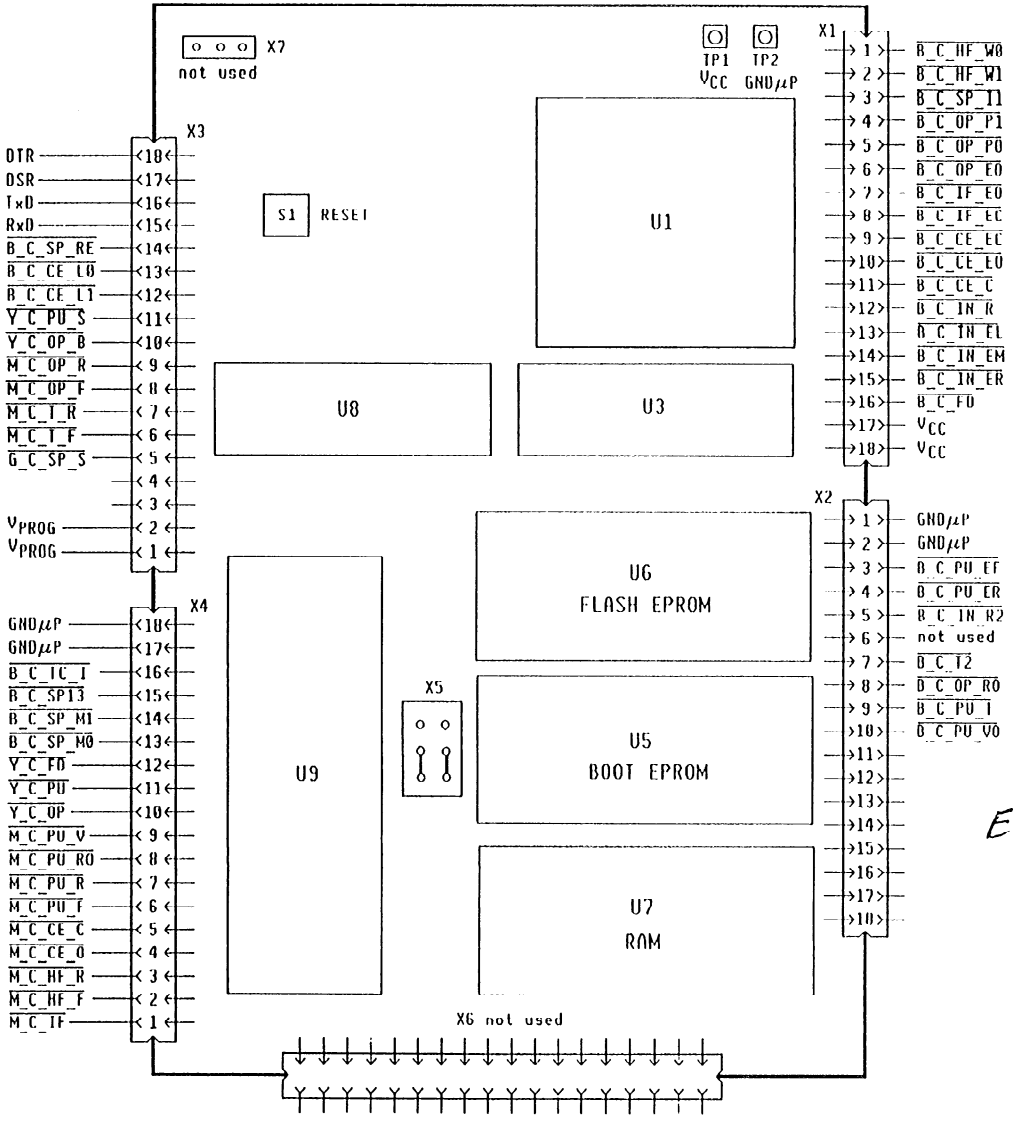
MAIN PROCESSOR CIRCUIT BOARD A1



OPERATOR INTERFACE CIRCUIT BOARD A2
Sheet 1 of 2

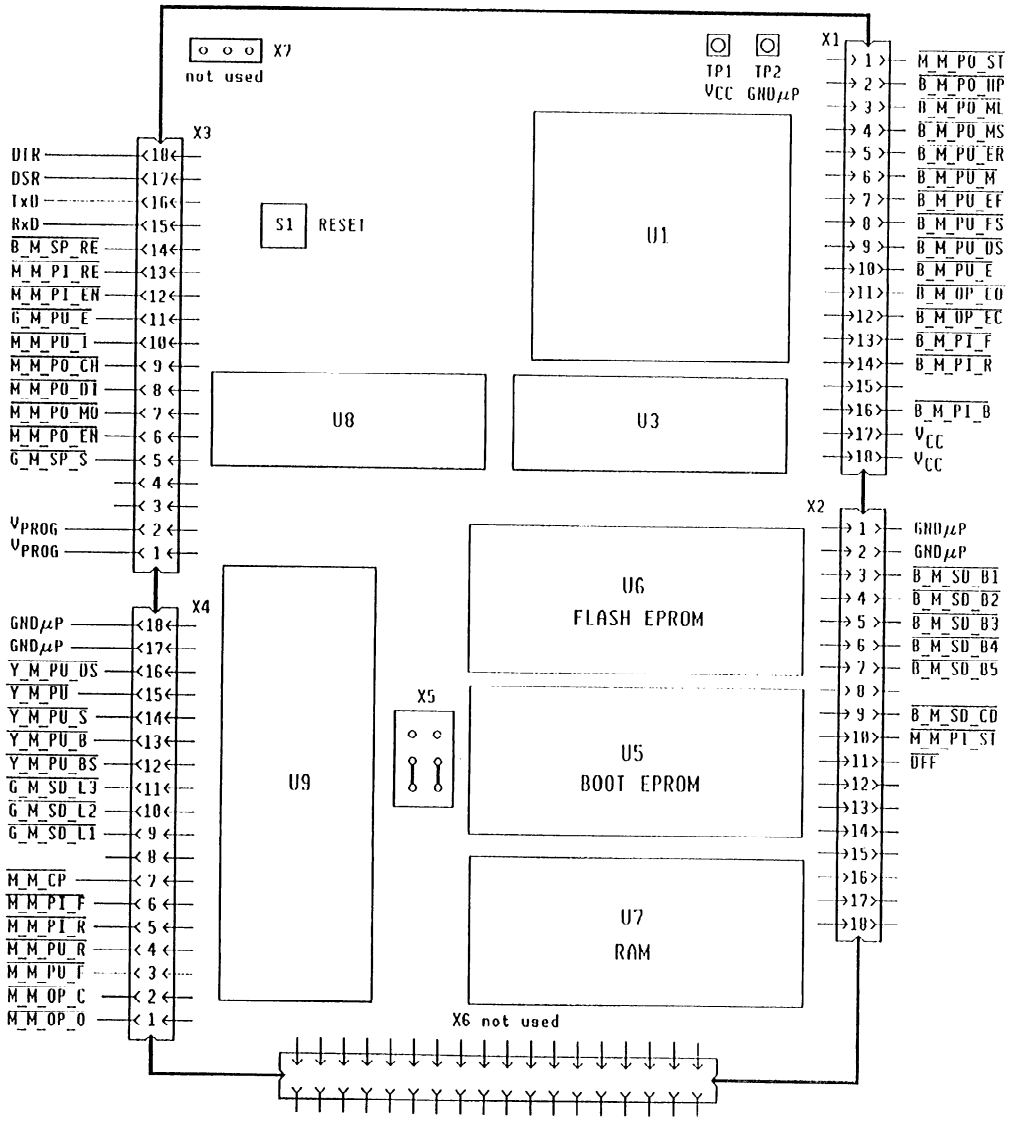


OPERATOR INTERFACE
CIRCUIT BOARD A2
Sheet 2 of 2

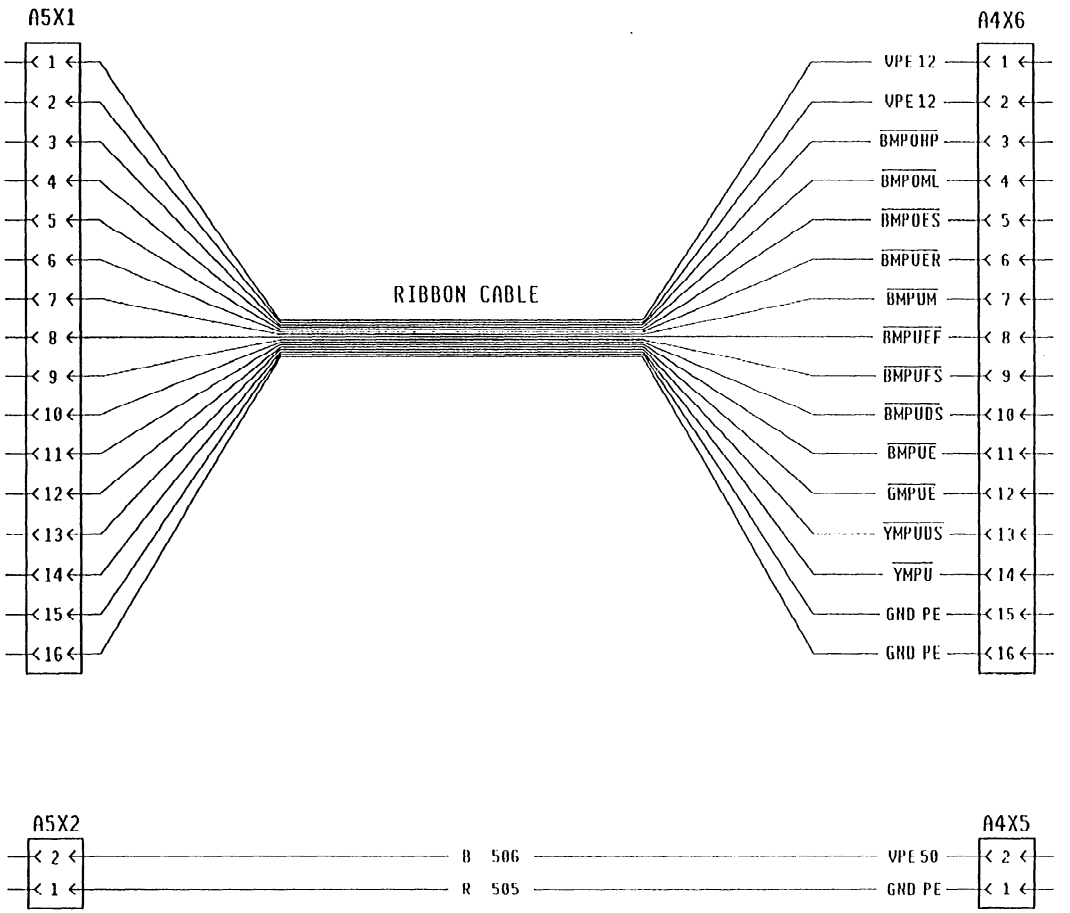


EPROM 27128
27256
27512

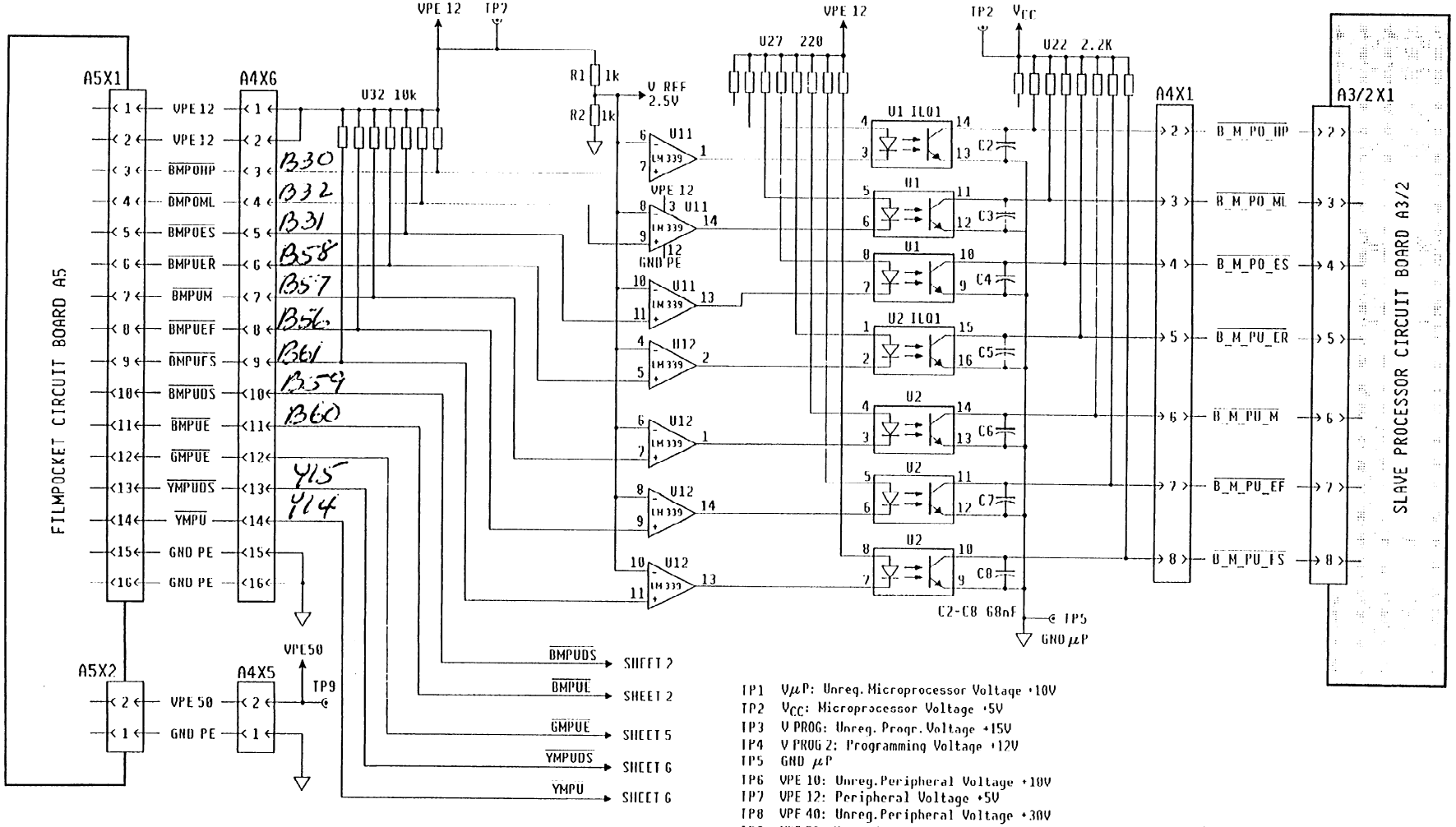
CASSETTE UNIT
SLAVE PROCESSOR A3/1



MAGAZINE UNIT
SLAVE PROCESSOR A3/2

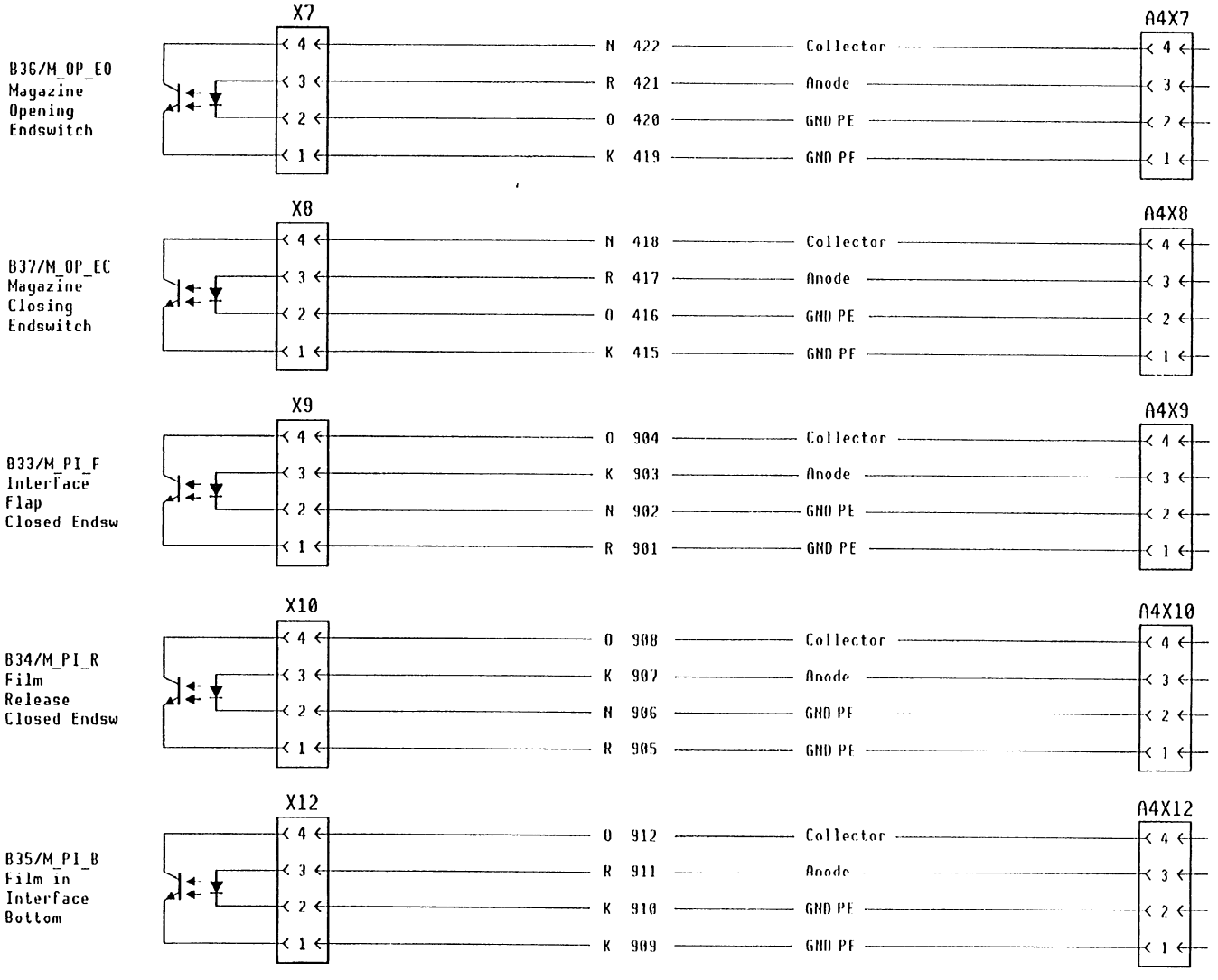


CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 1 of 9
WIRING DIAGRAM

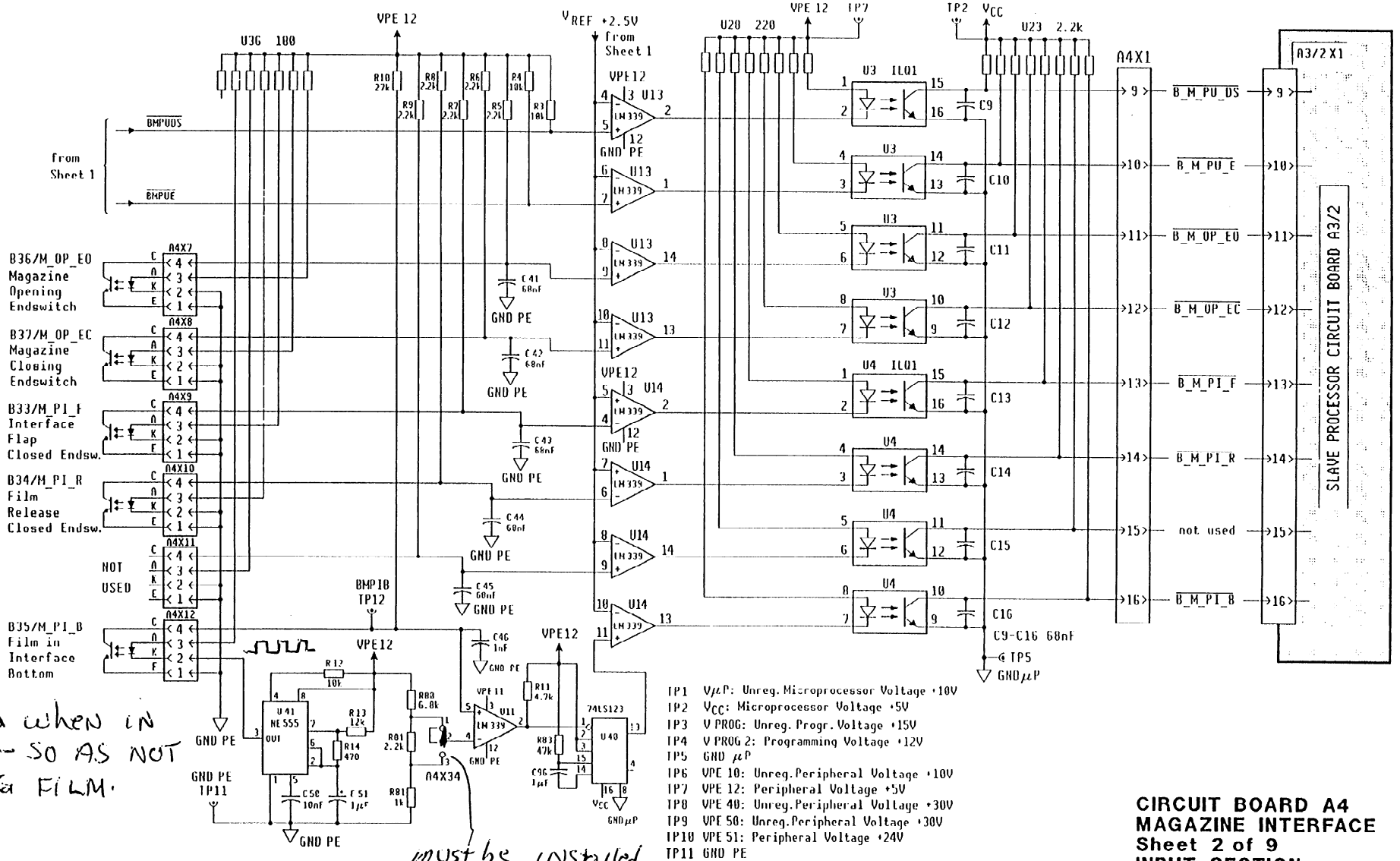


TP1 VµP: Unreg. Microprocessor Voltage +10V
TP2 V_{CC}: Microprocessor Voltage +5V
TP3 V PROG: Unreg. Progr. Voltage +15V
TP4 V PROG 2: Programming Voltage +12V
TP5 GND µP
TP6 VPE 10: Unreg. Peripheral Voltage +10V
TP7 VPE 12: Peripheral Voltage +5V
TP8 VPE 40: Unreg. Peripheral Voltage +30V
TP9 VPE 50: Unreg. Peripheral Voltage +30V
TP10 VPE 51: Peripheral Voltage +24V
TP11 GND PE

CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 1 of 9
INPUT SECTION



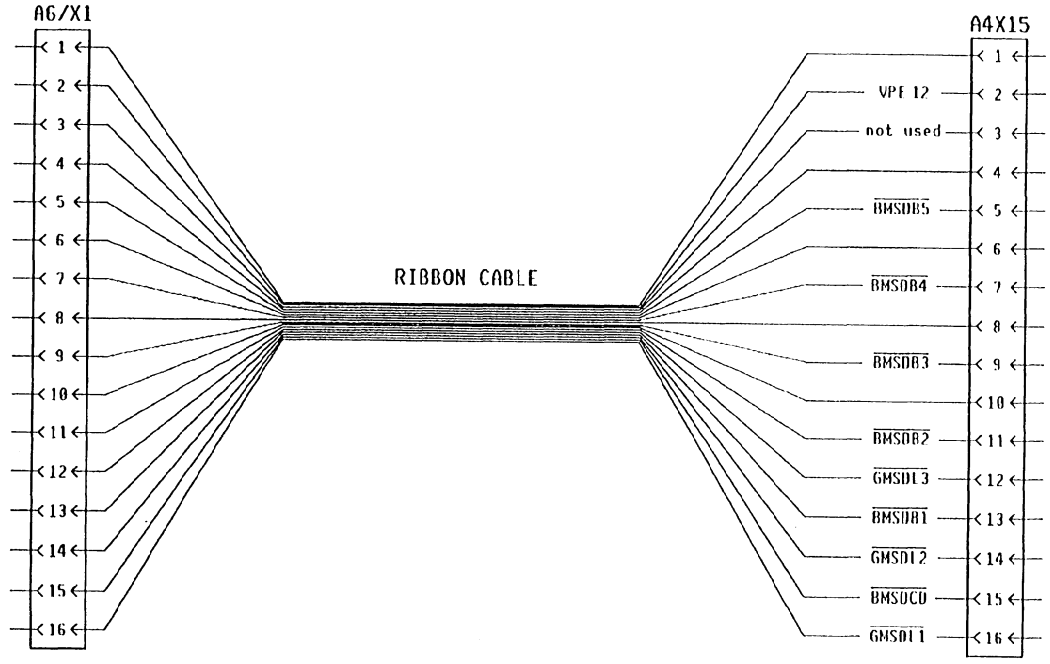
CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 2 of 9
WIRING DIAGRAM



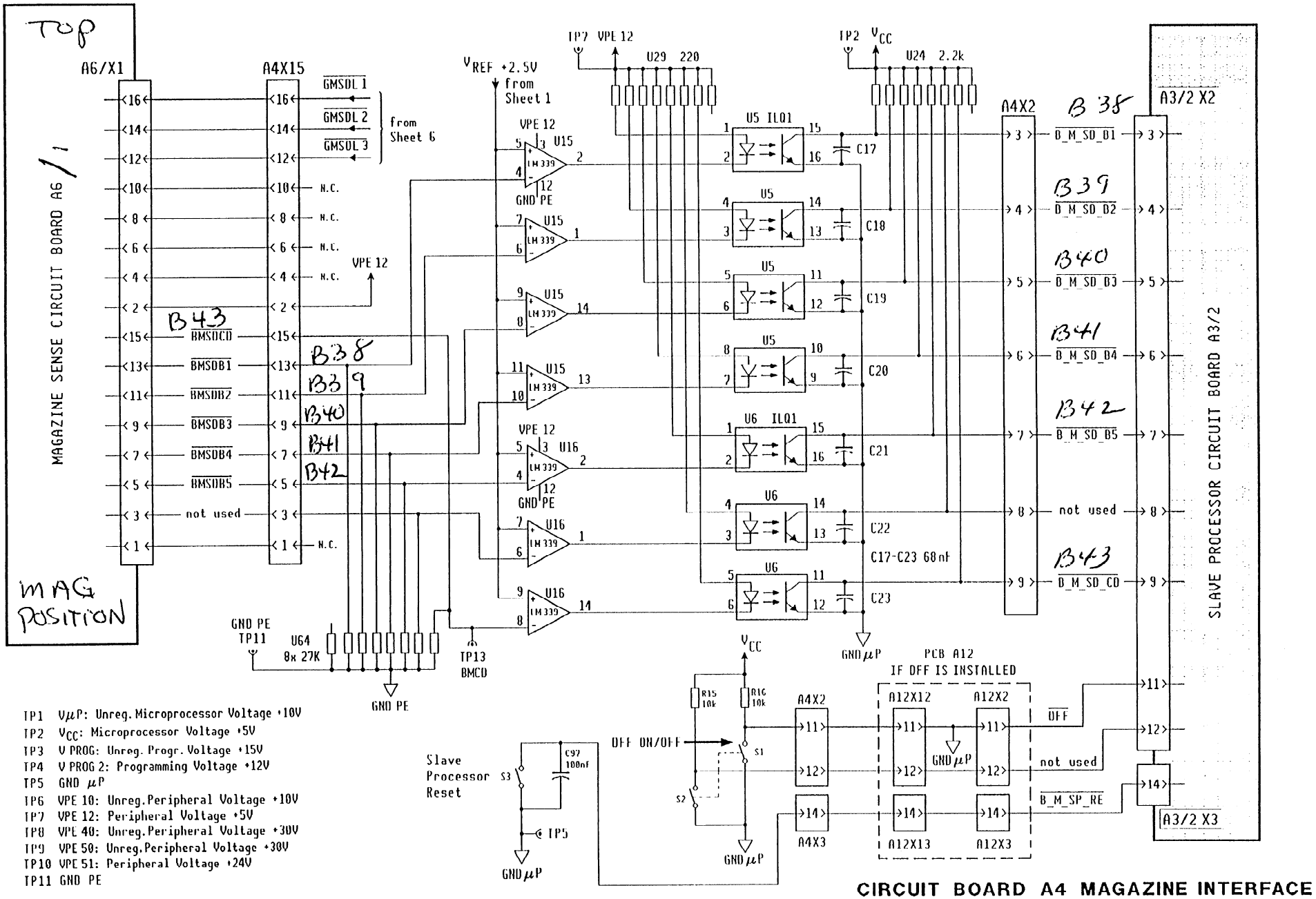
Pulsed when in chute - so as not to fog film.

must be installed See Newsletter >2.2 Vdc film <0.5 Vdc no film

CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 2 of 9
INPUT SECTION



CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 3 of 9
WIRING DIAGRAM



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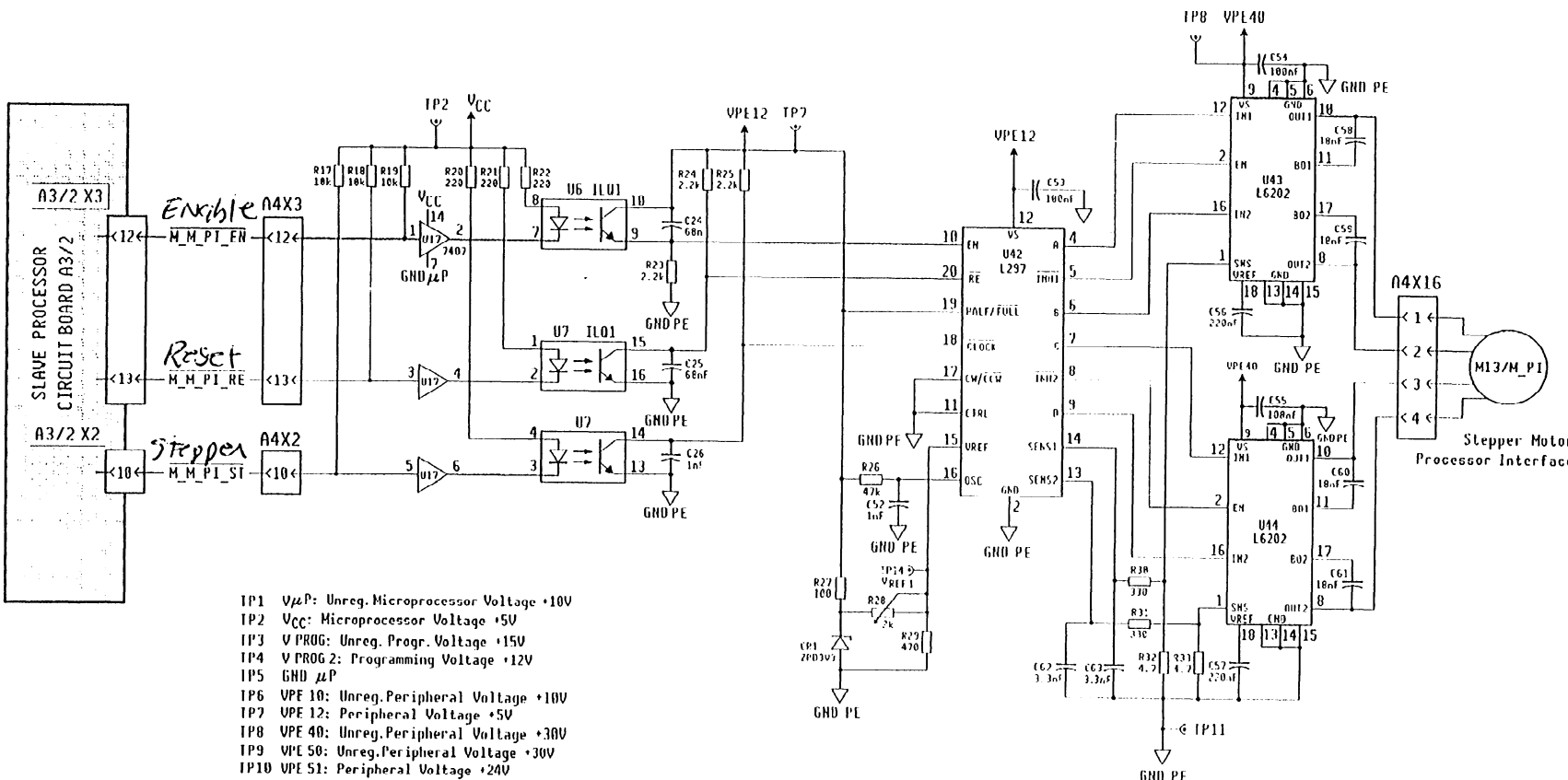
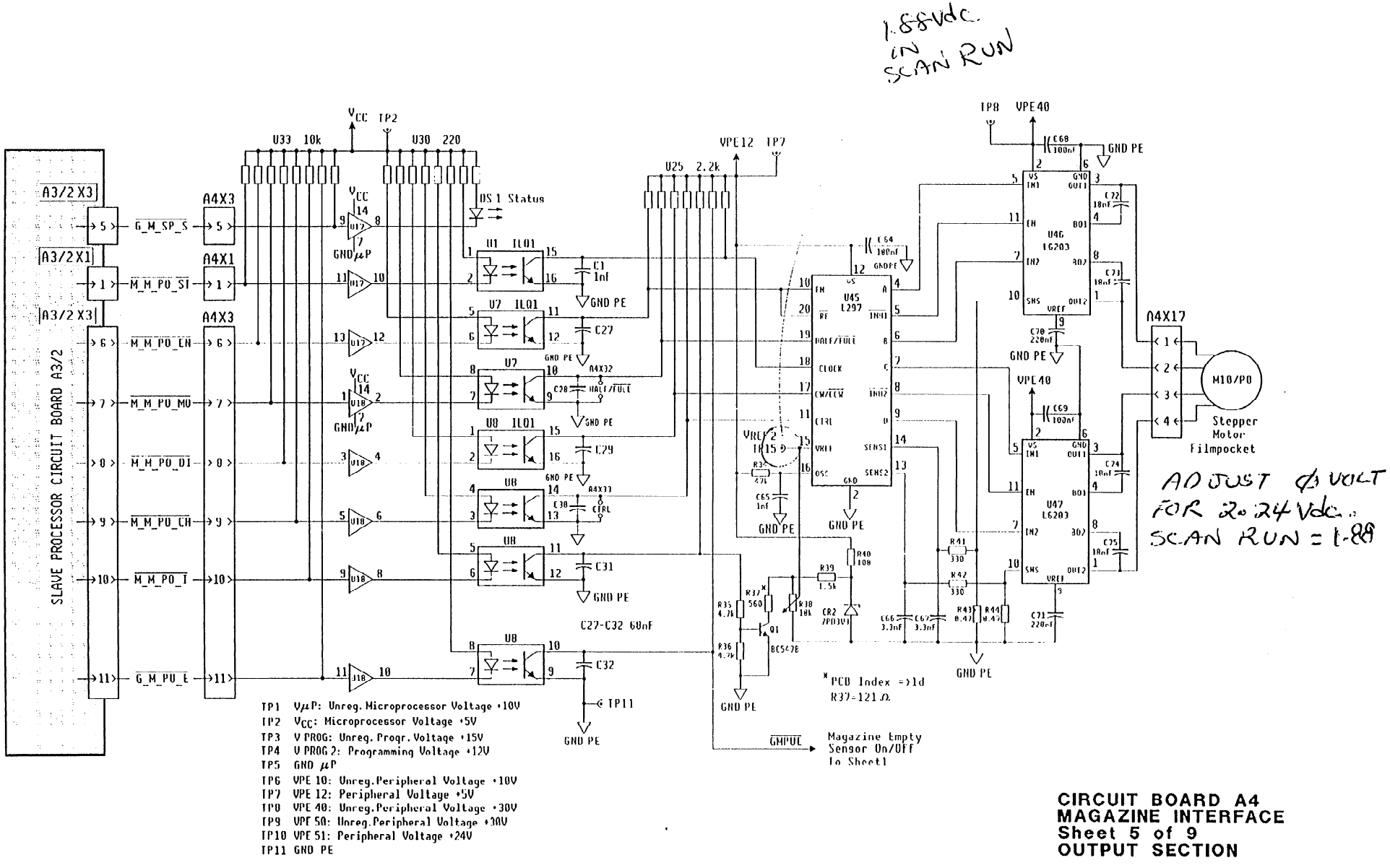
TP3 V PROG: Unreg. Progr. Voltage +15V
TP4 V PROG 2: Programming Voltage +12V
TP5 GND µP
TP6 VPE 10: Unreg. Peripheral Voltage +10V
TP7 VPE 12: Peripheral Voltage +5V
TP8 VPE 40: Unreg. Peripheral Voltage +30V
TP9 VPE 50: Unreg. Peripheral Voltage +30V
TP10 VPE 51: Peripheral Voltage +24V
TP11 GND PE

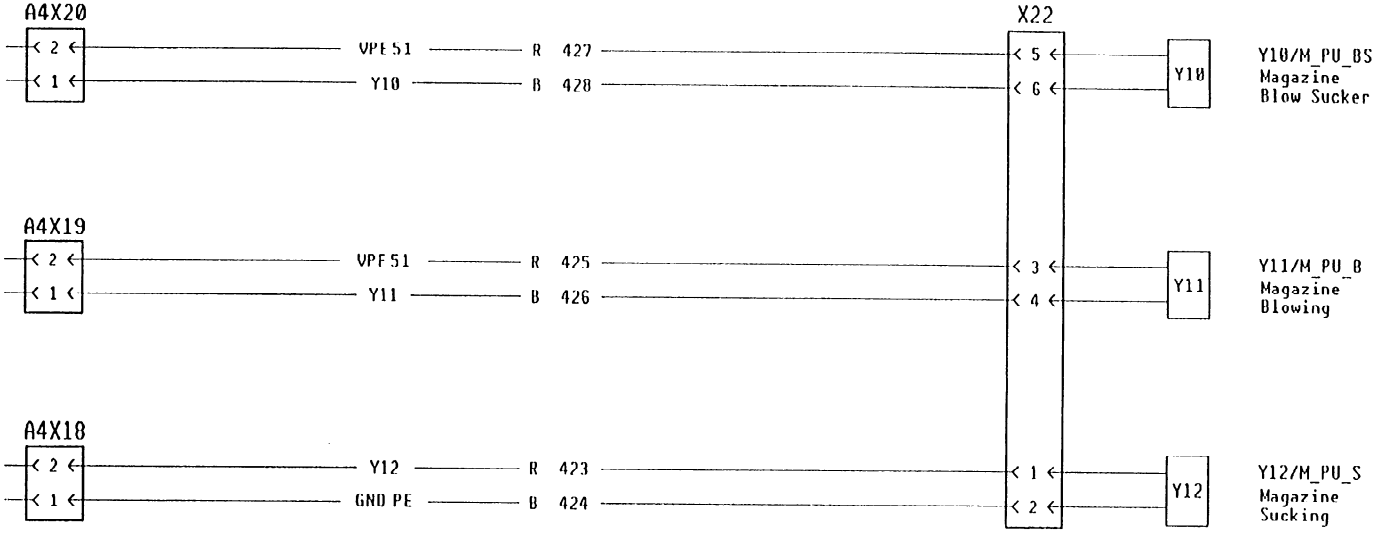
CIRCUIT BOARD A4 MAGAZINE INTERFACE
Sheet 3 of 9
INPUT SECTION



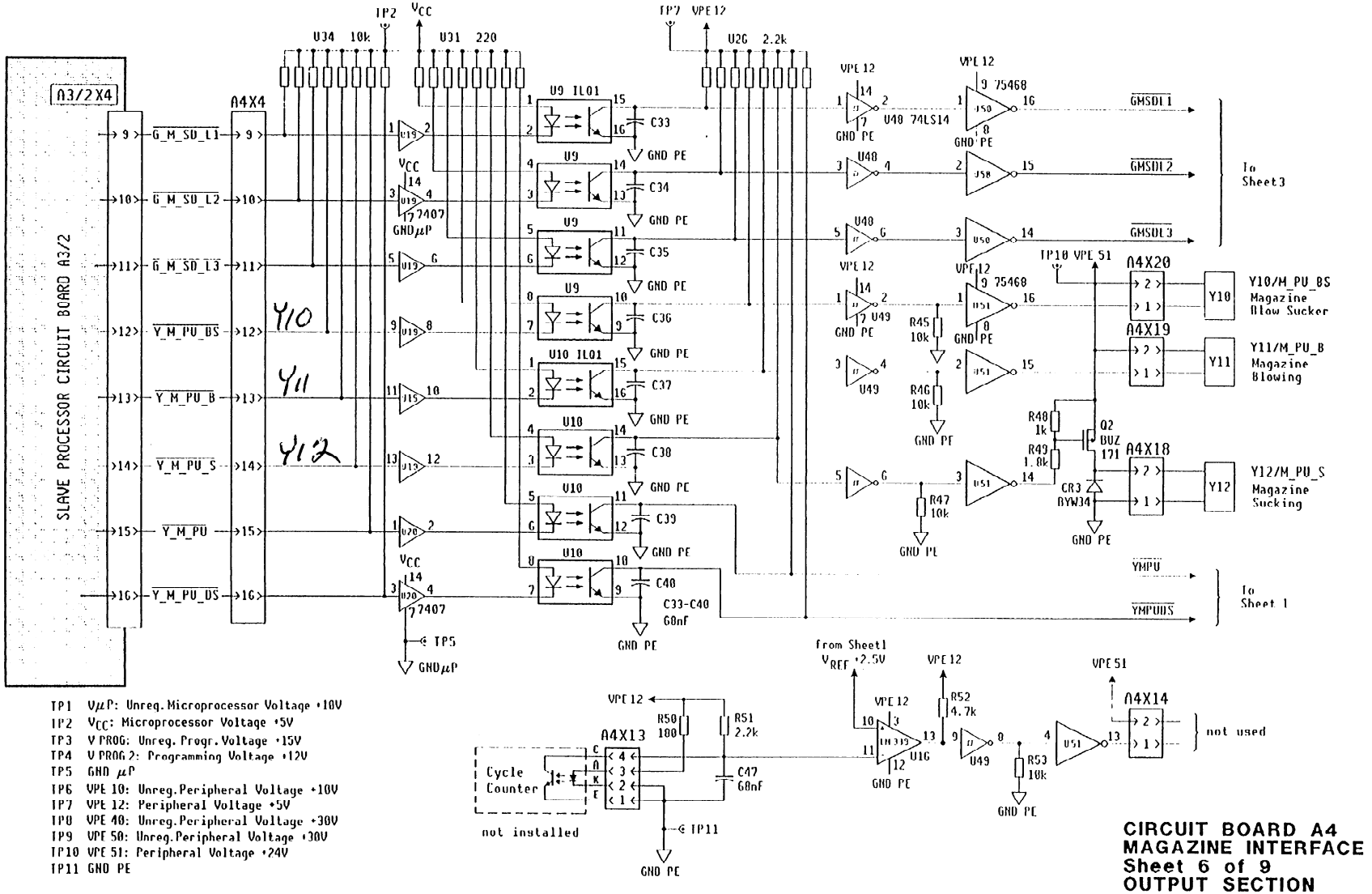
CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 4 of 9
OUTPUT SECTION



CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 5 of 9
OUTPUT SECTION



CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 6 of 9
WIRING DIAGRAM



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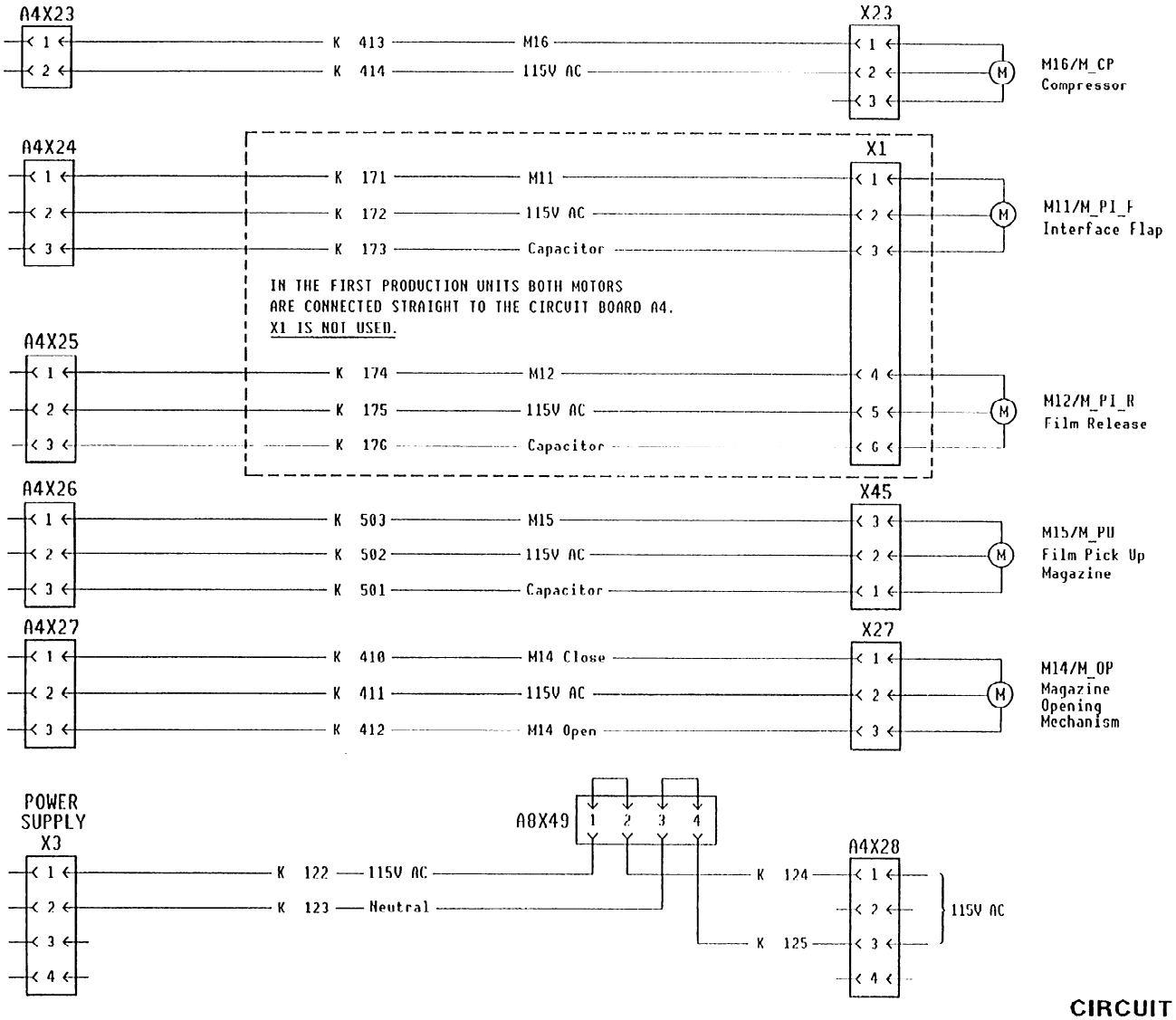
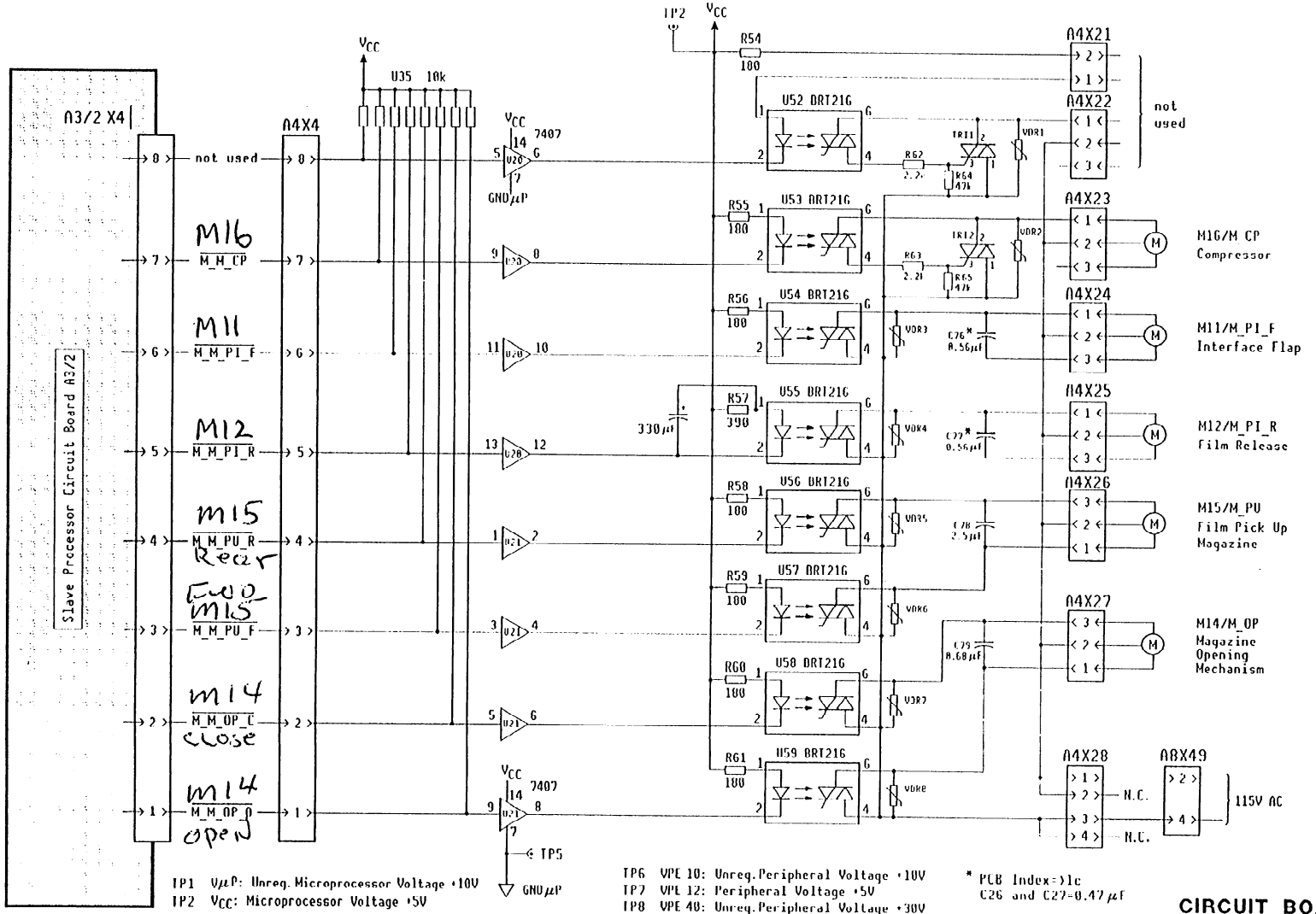
TP9 VPE 50: Unreg. Peripheral Voltage +30V
TP10 VPE 51: Peripheral Voltage +24V
TP11 GND PE

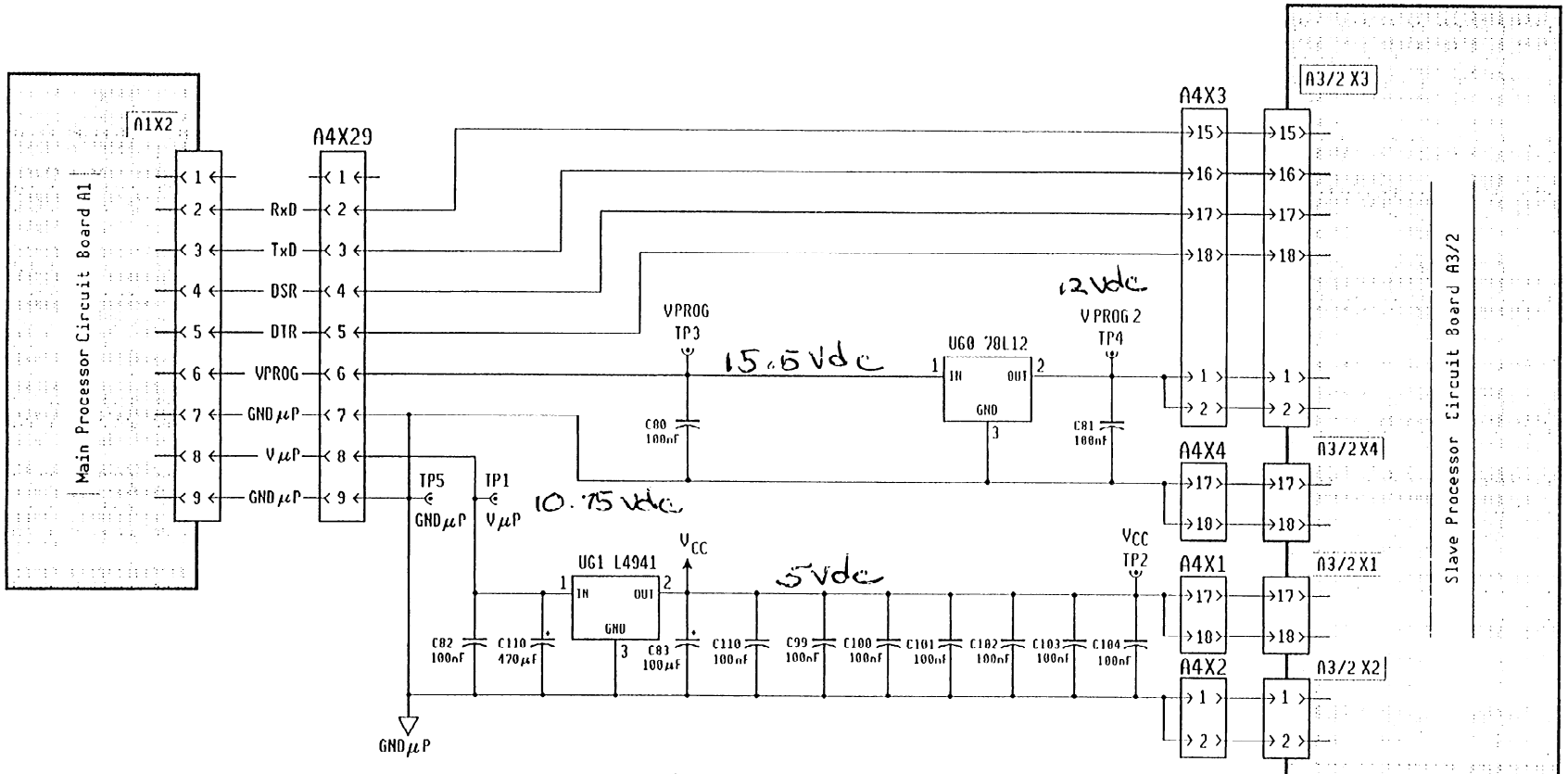
CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 6 of 9
OUTPUT SECTION



CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 7 of 9
WIRING DIAGRAM



CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 7 of 9
OUTPUT SECTION



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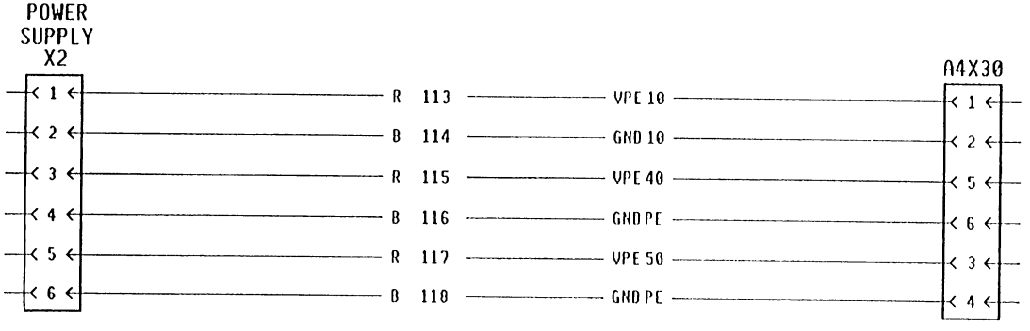
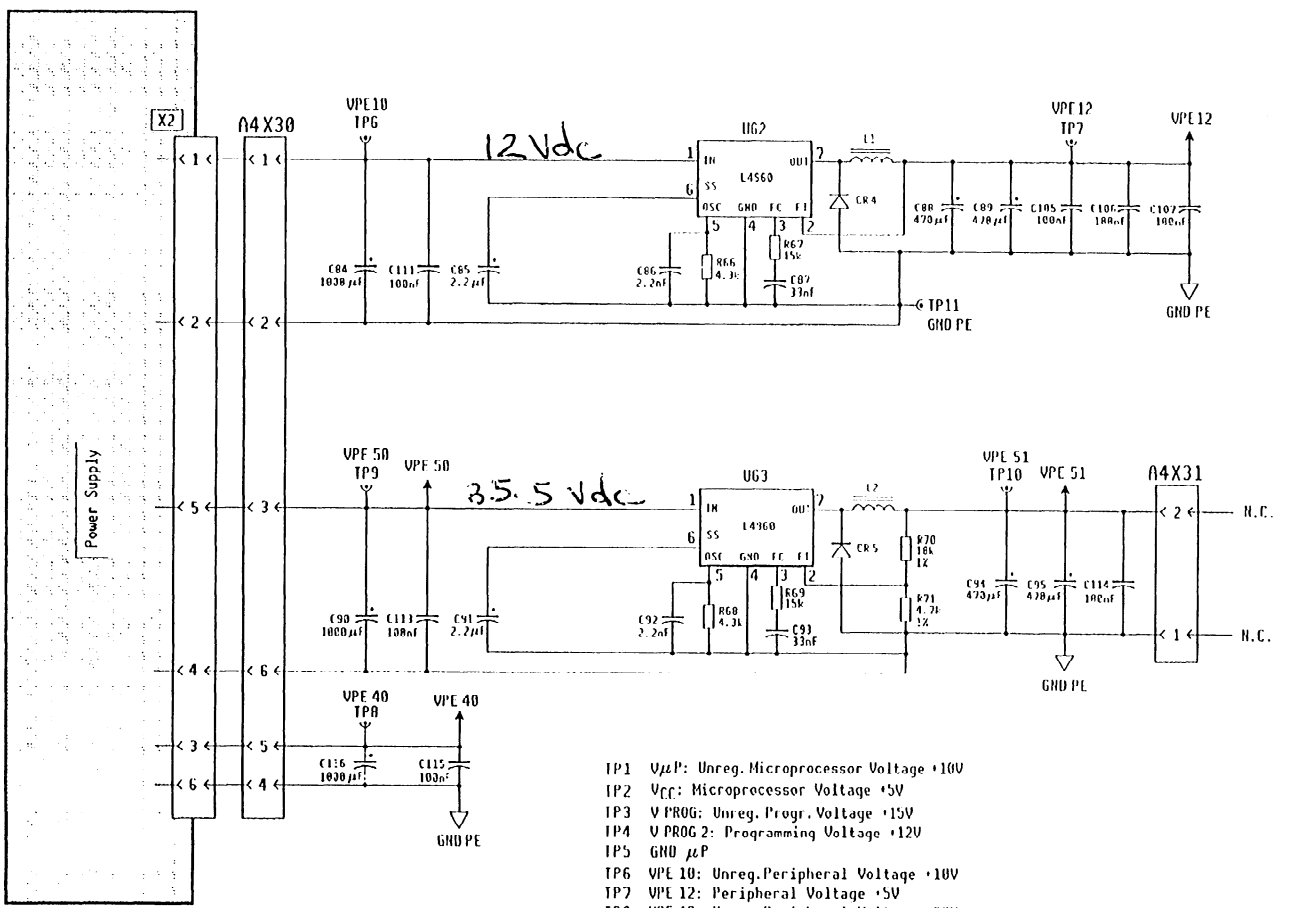
TP8 VPE 40: Unreg. Peripheral Voltage +30V
TP9 VPE 50: Unreg. Peripheral Voltage +30V
TP10 VPE 51: Peripheral Voltage +24V
TP11 GND PE

CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 8 of 9
RS 232

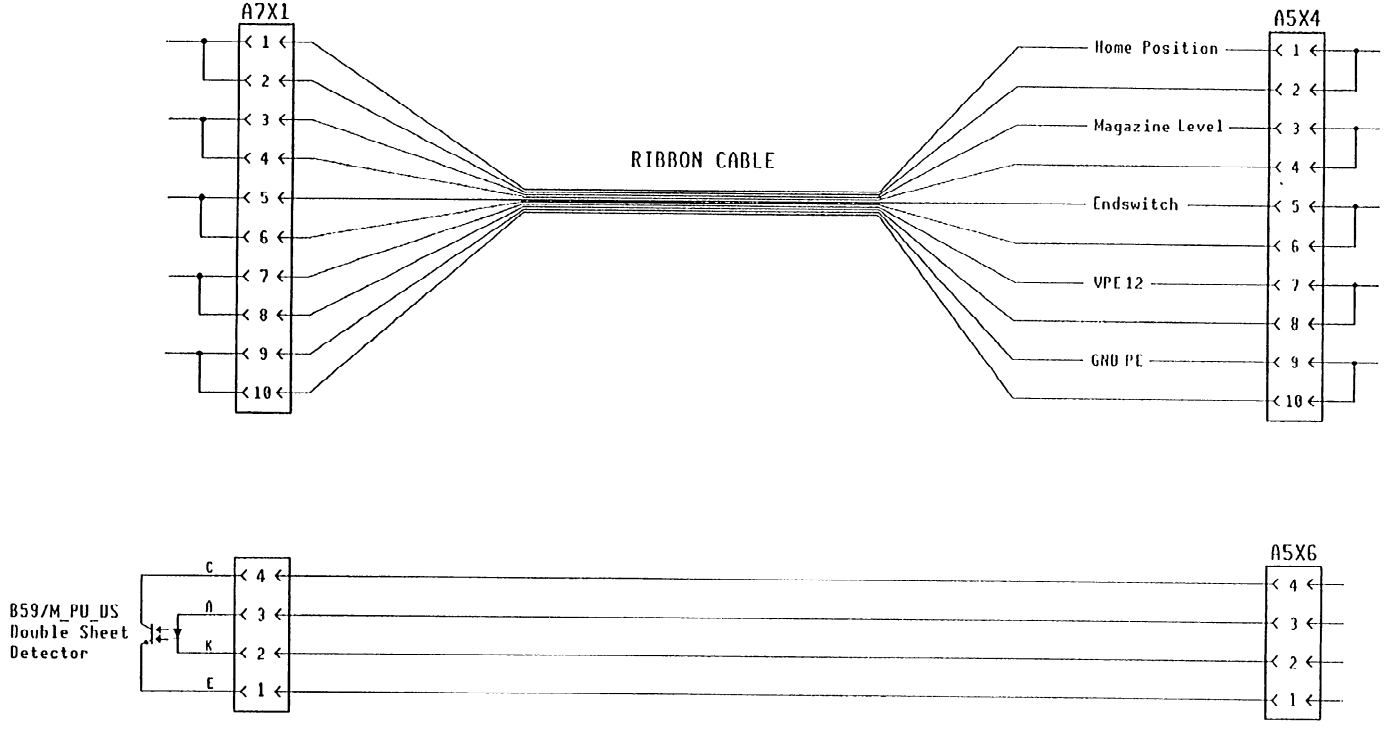


CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 9 of 9
WIRING DIAGRAM

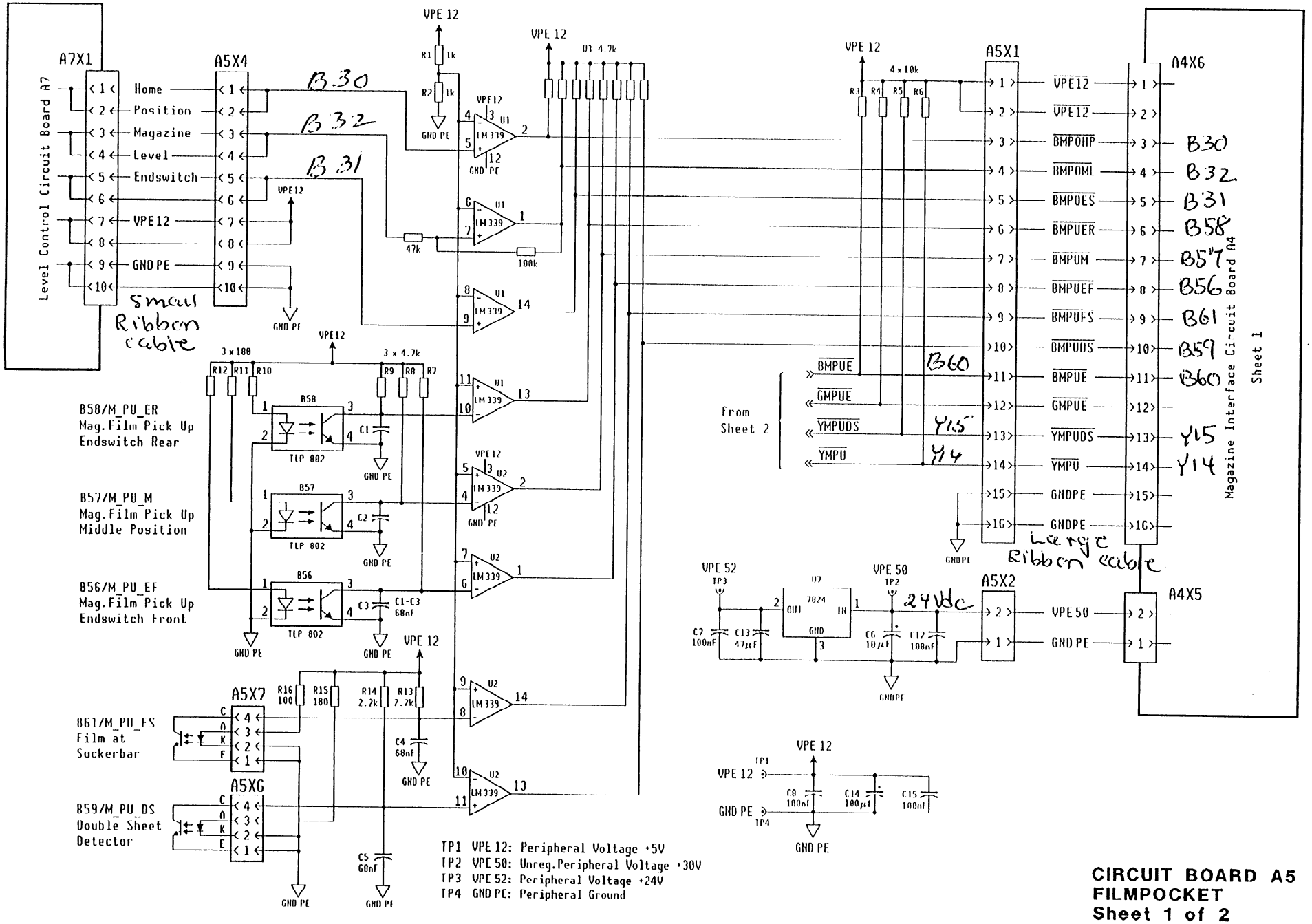


TP1 $V_{\mu P}$: Unreg. Microprocessor Voltage +10V
TP2 V_{CC}: Microprocessor Voltage +5V
TP3 V PROG: Unreg. Progr. Voltage +15V
TP4 V PROG 2: Programming Voltage +12V
TP5 GND μP
TP6 VPE 10: Unreg. Peripheral Voltage +10V
TP7 VPE 12: Peripheral Voltage +5V
TP8 VPE 40: Unreg. Peripheral Voltage +30V
TP9 VPE 50: Unreg. Peripheral Voltage +30V
TP10 VPE 51: Peripheral Voltage +24V
TP11 GND PE

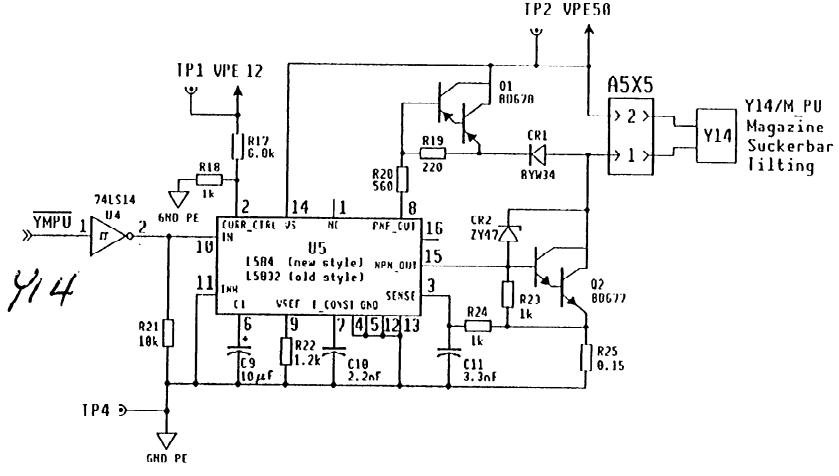
CIRCUIT BOARD A4
MAGAZINE INTERFACE
Sheet 9 of 9
POWER REGULATOR



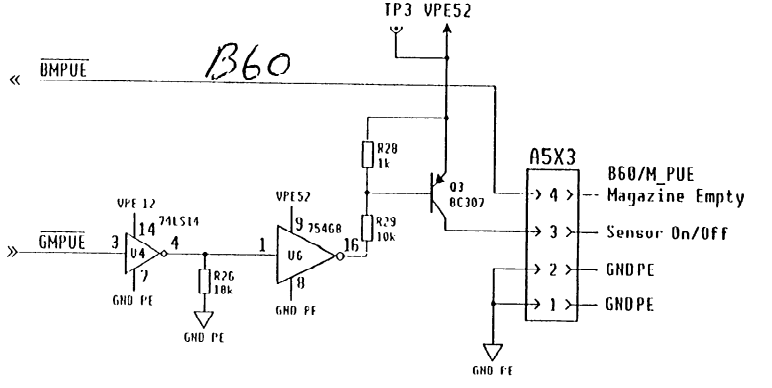
CIRCUIT BOARD A5
FILMPOCKET
Sheet 1 of 2
WIRING DIAGRAM

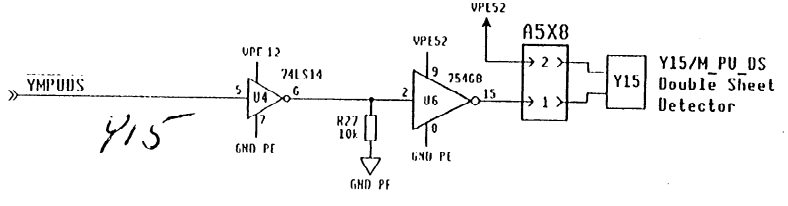


CIRCUIT BOARD A5
FILMPOCKET
Sheet 1 of 2

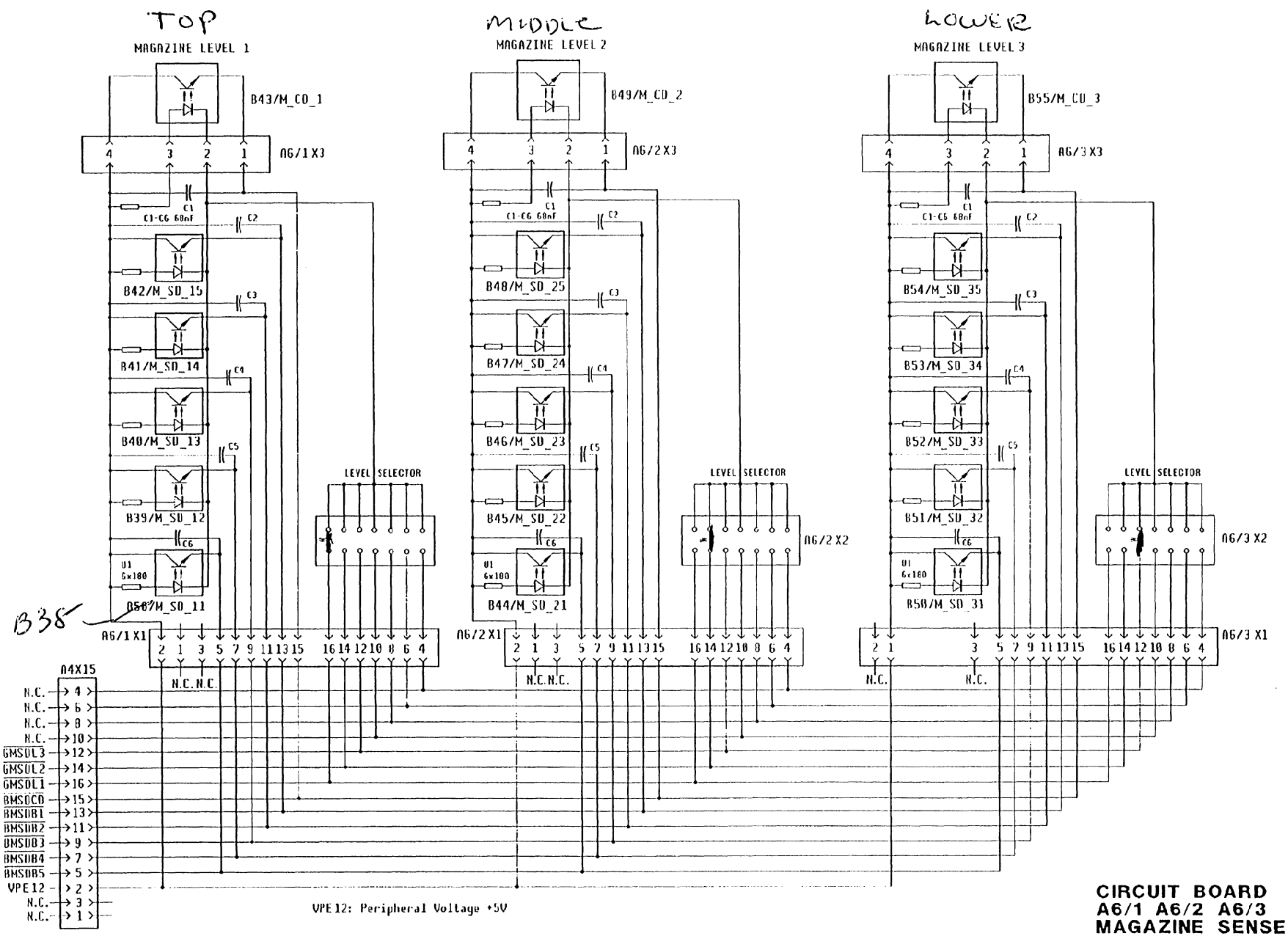


TP1 VPE 12: Peripheral Voltage +5V
TP2 VPE 50: Unreg.Peripheral Voltage +30V
TP3 VPE 52: Peripheral Voltage +24V
TP4 GND PE: Peripheral Ground

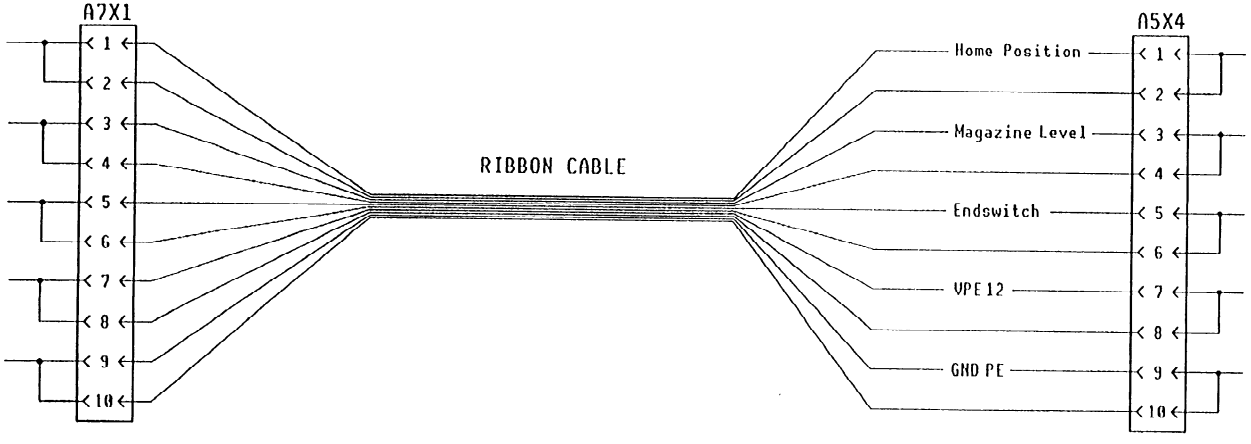




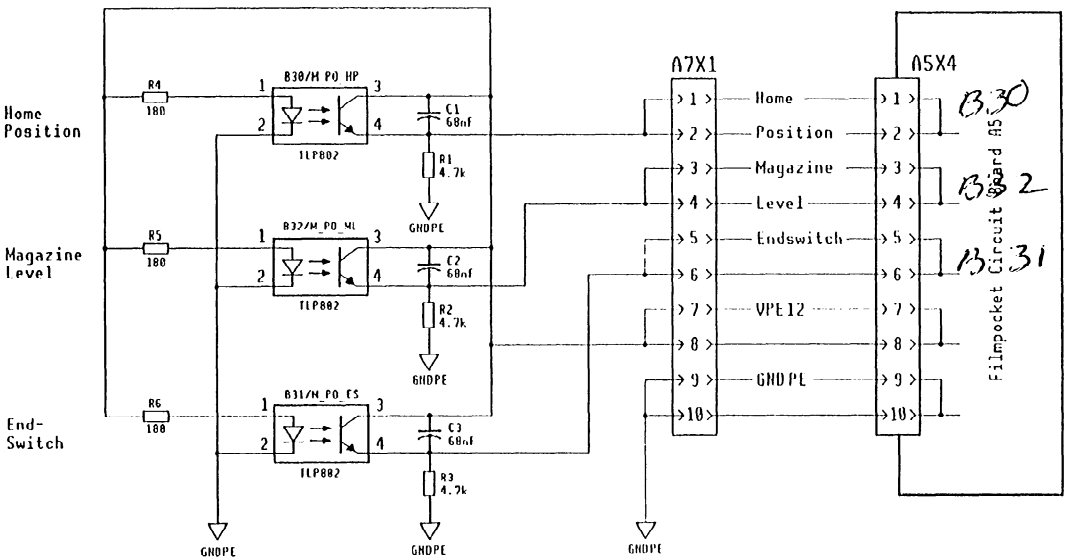
CIRCUIT BOARD A5
FILMPOCKET
Sheet 2 of 2



CIRCUIT BOARD
A6/1 A6/2 A6/3
MAGAZINE SENSE

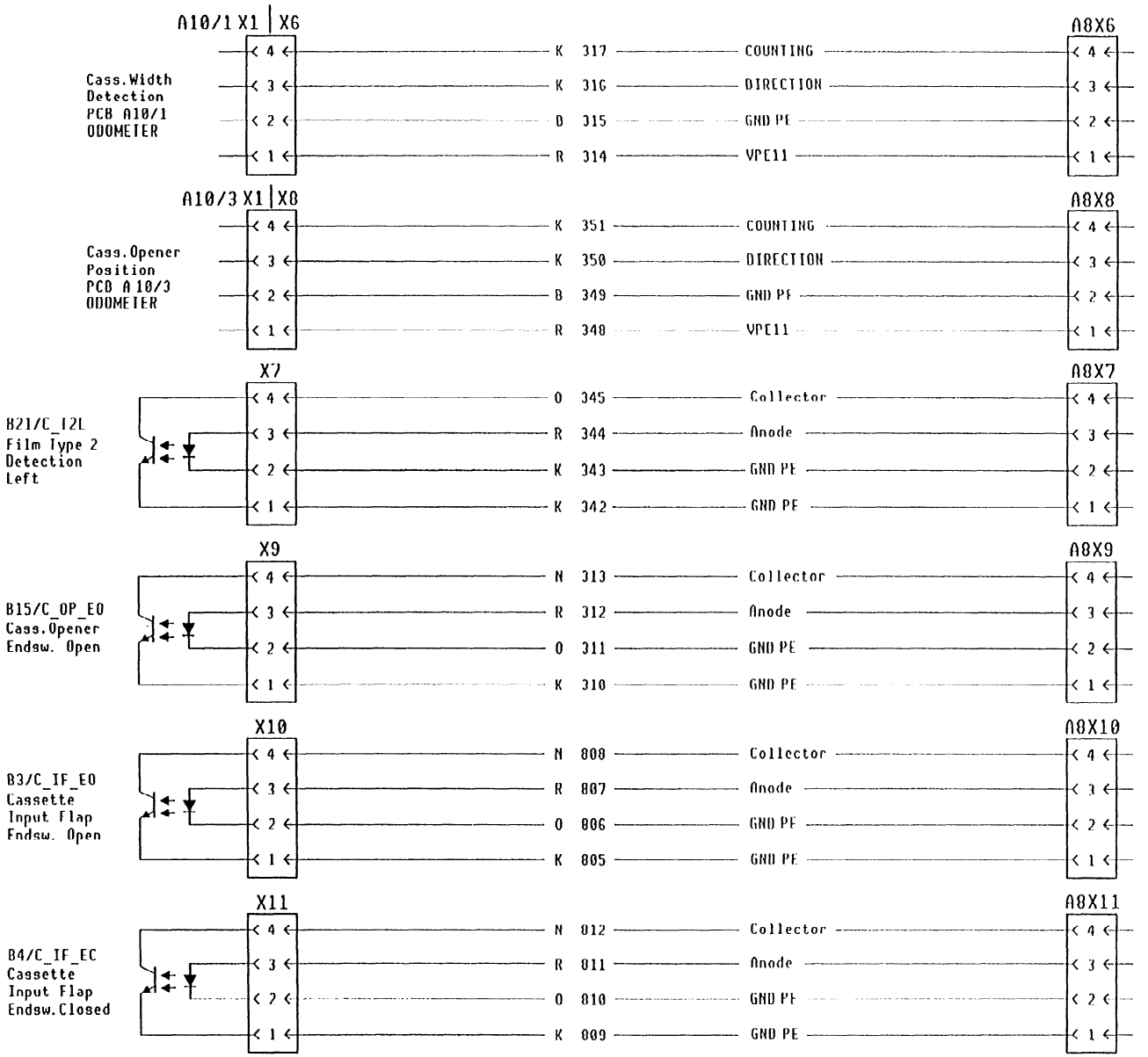


CIRCUIT BOARD A7
LEVEL CONTROL
WIRING DIAGRAM

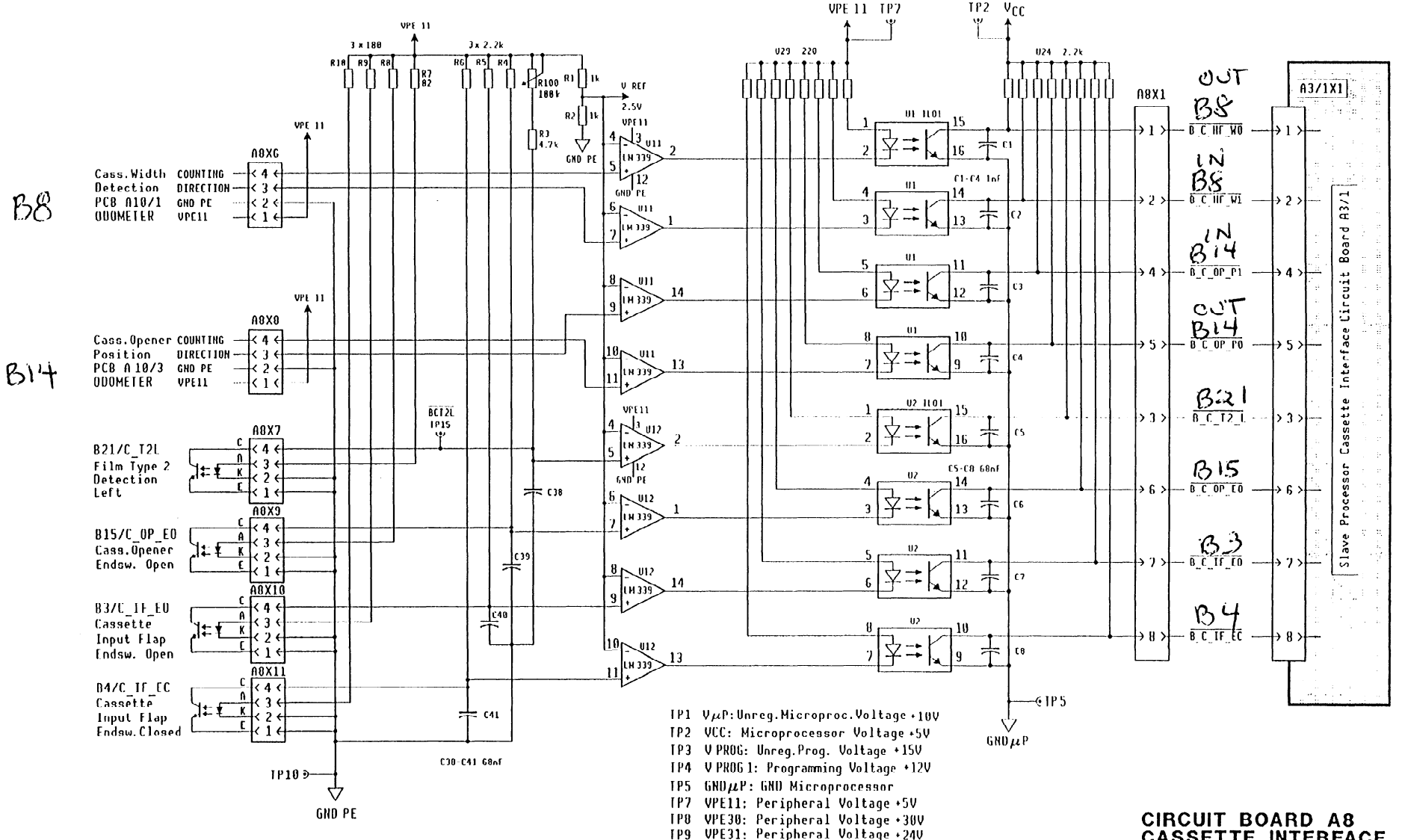


VPE 12: Peripheral Voltage +5V
GND PE: Peripheral Ground

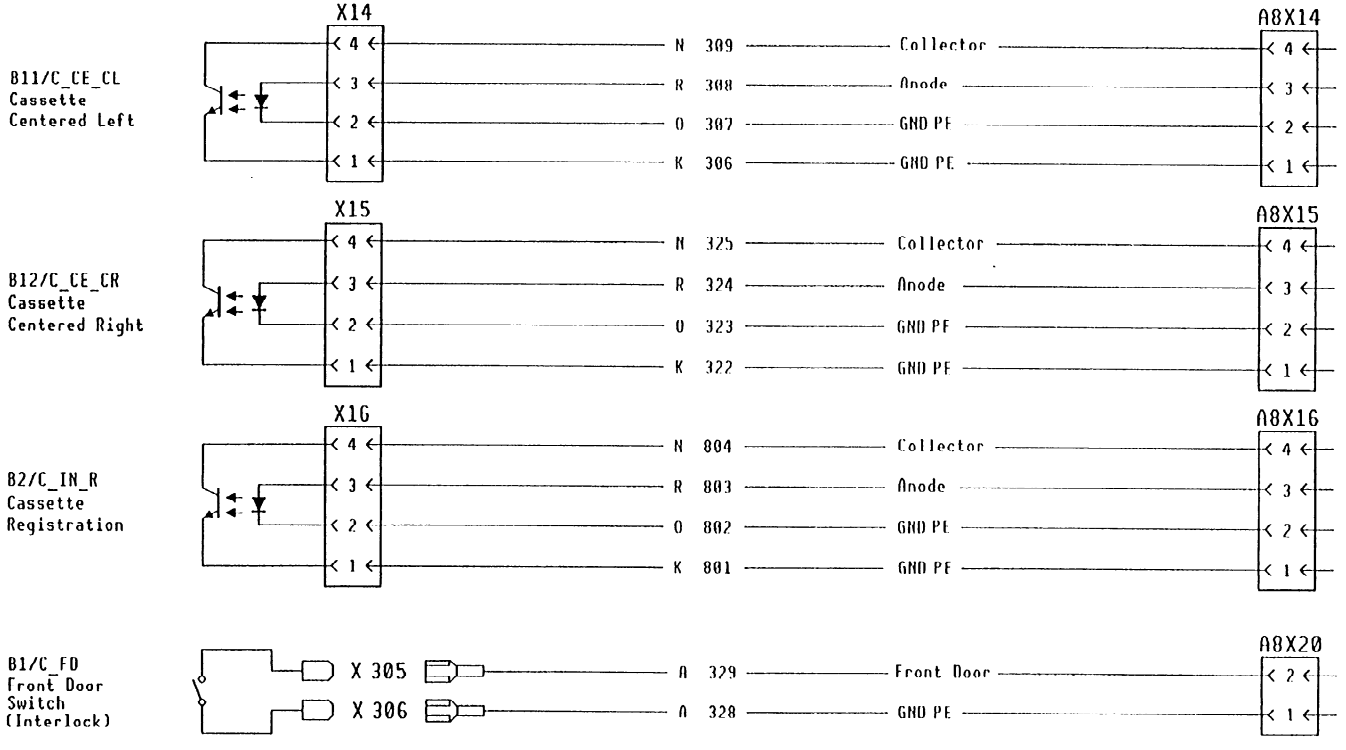
CIRCUIT BOARD A7
LEVEL CONTROL


A10/1 X1 | X6
A8X6
Cass.Width Detection PCB A10/1 ODOMETER
4 K 317 COUNTING 4
3 K 316 DIRECTION 3
2 D 315 GND PE 2
1 R 314 VPE11 1
A10/3 X1 | X8
A8X8
Cass.Opener Position PCB A10/3 ODOMETER
4 K 351 COUNTING 4
3 K 350 DIRECTION 3
2 B 349 GND PE 2
1 R 348 VPE11 1
X7
A8X7
B21/C_I2L Film Type 2 Detection Left
4 O 345 Collector 4
3 R 344 Anode 3
2 K 343 GND PE 2
1 K 342 GND PE 1
X9
A8X9
B15/C_OP_E0 Cass.Opener Endsw. Open
4 N 313 Collector 4
3 R 312 Anode 3
2 O 311 GND PE 2
1 K 310 GND PE 1
X10
A8X10
B3/C_IF_E0 Cassette Input Flap Endsw. Open
4 N 808 Collector 4
3 R 807 Anode 3
2 O 806 GND PE 2
1 K 805 GND PE 1
X11
A8X11
B4/C_IF_EC Cassette Input Flap Endsw.Closed
4 N 812 Collector 4
3 R 811 Anode 3
2 O 810 GND PE 2
1 K 809 GND PE 1

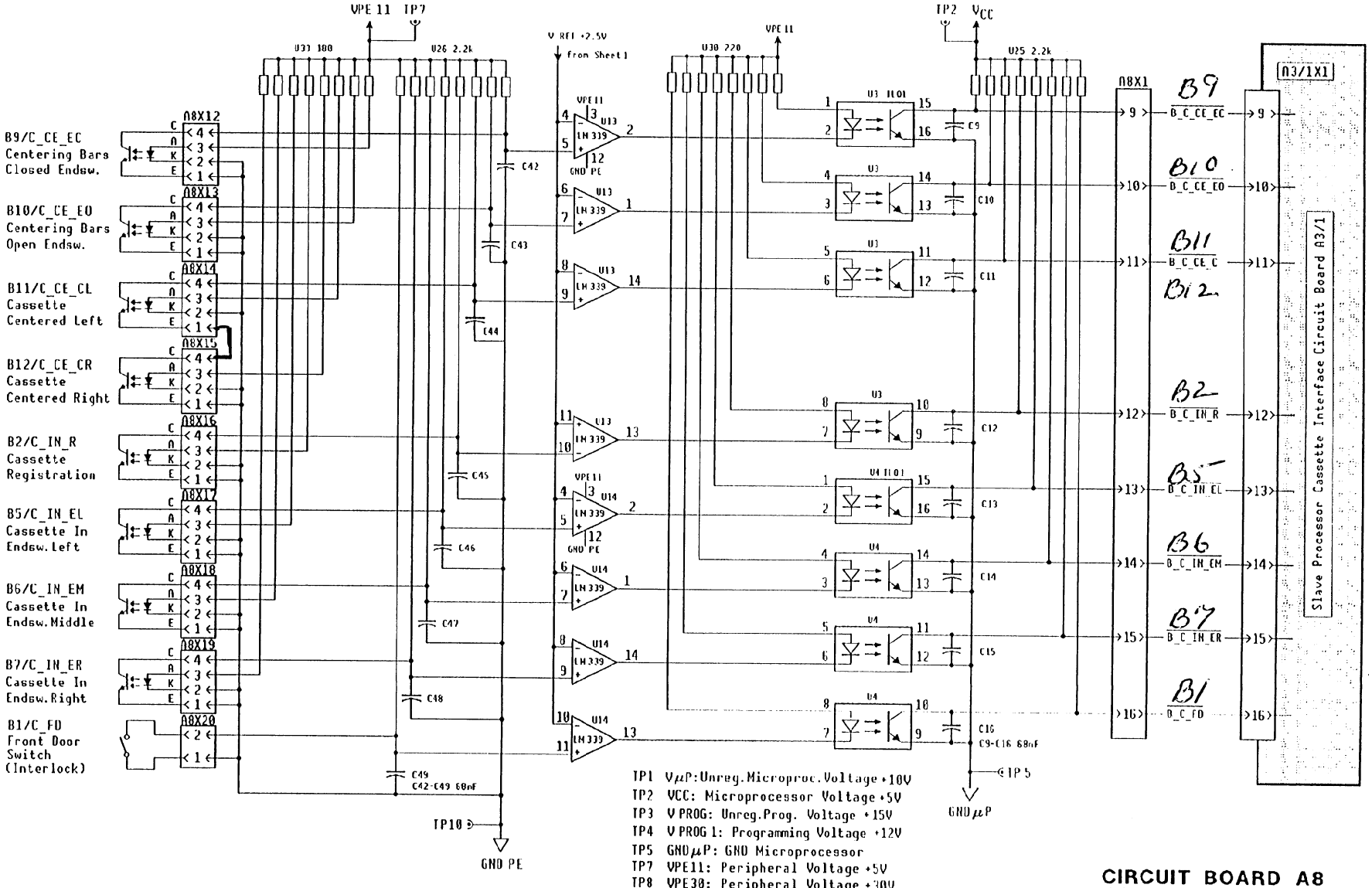
CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 1 of 9
WIRING DIAGRAM



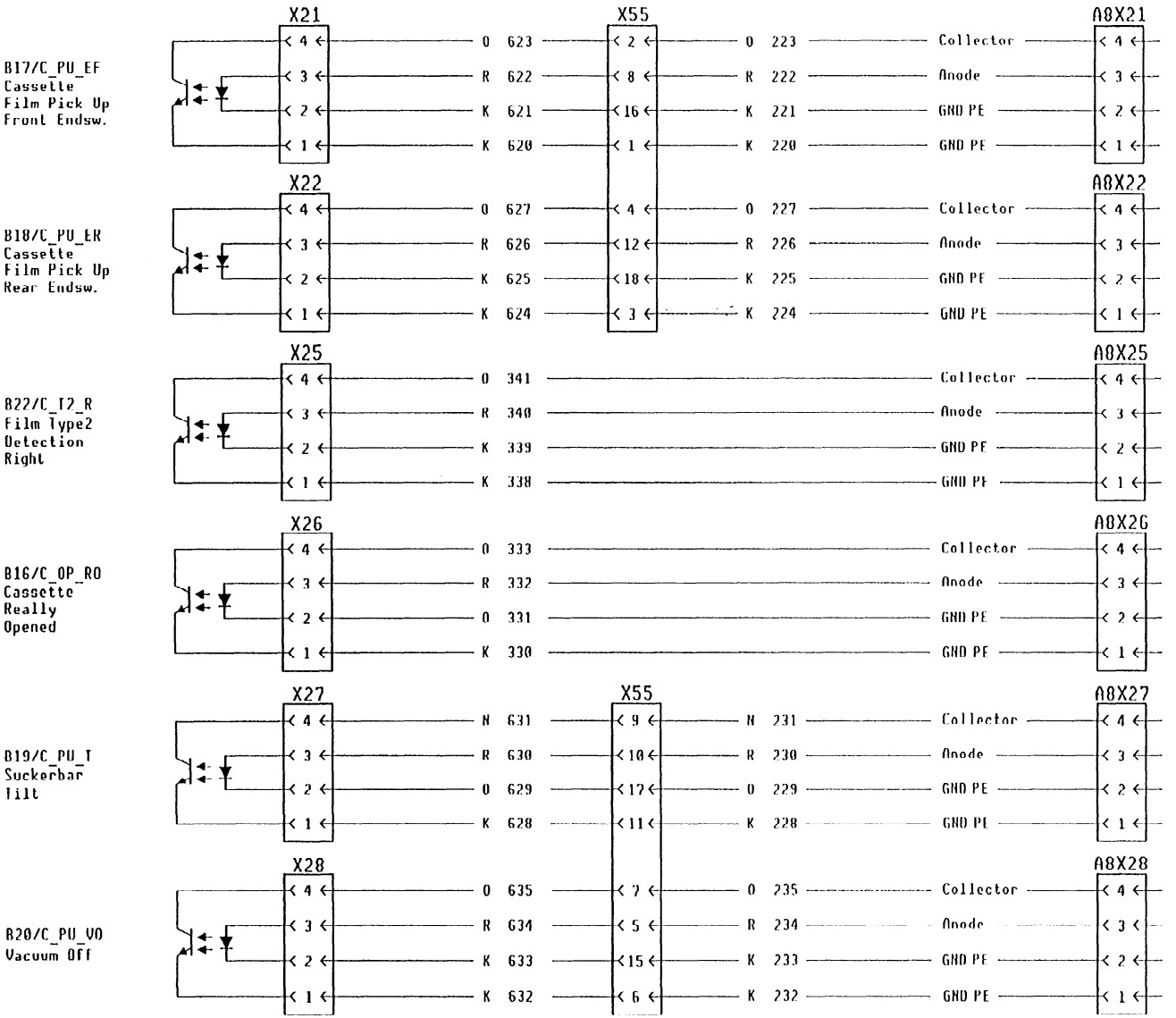
CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 1 of 9
INPUT SECTION



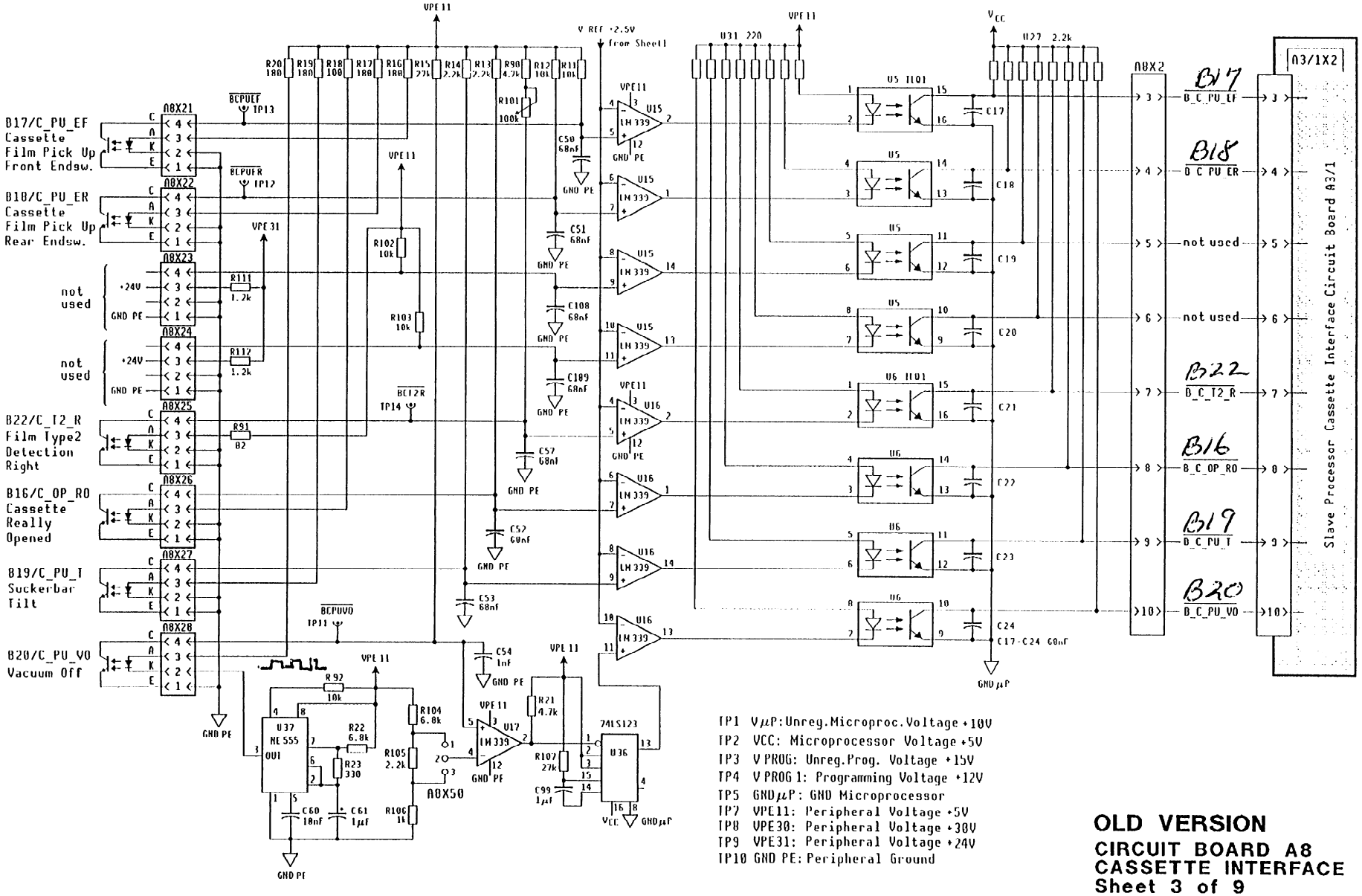
CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 2 of 9
WIRING DIAGRAM



CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 2 of 9
INPUT SECTION

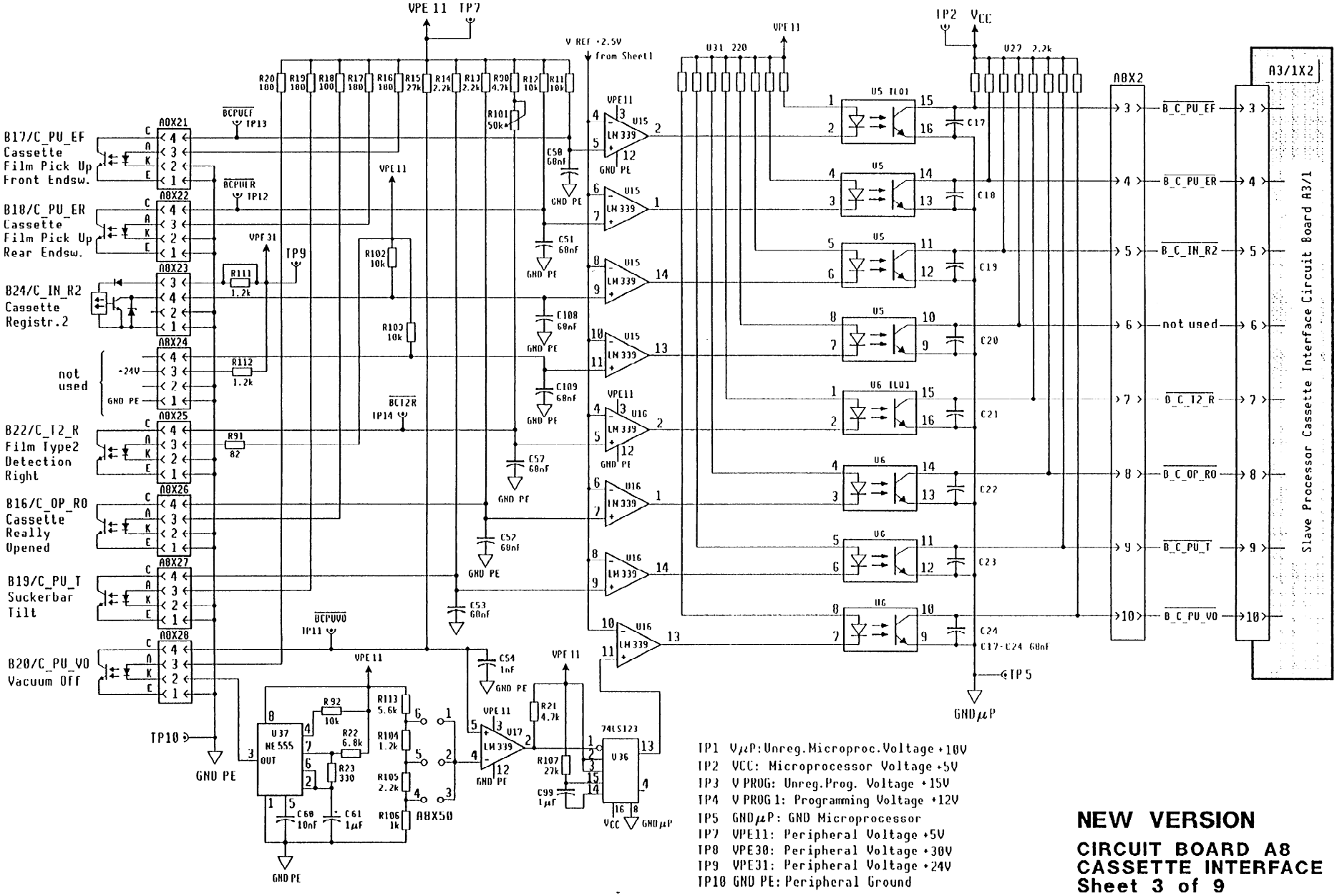


CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 3 of 9
WIRING DIAGRAM



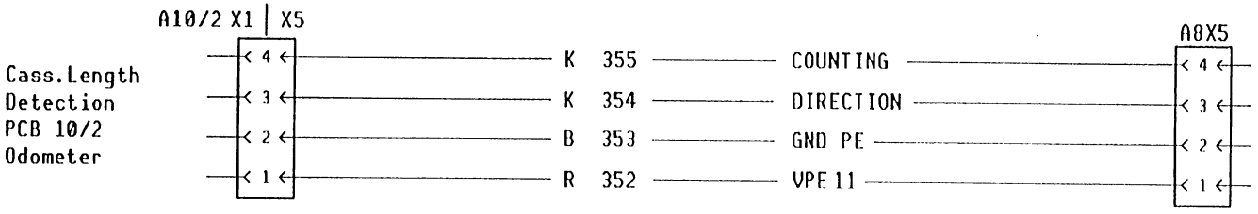
TP1 VµP: Unreg. Microproc. Voltage +10V
TP2 VCC: Microprocessor Voltage +5V
TP3 V PROG: Unreg. Prog. Voltage +15V
TP4 V PROG 1: Programming Voltage +12V
TP5 GNDµP: GND Microprocessor
TP7 VPE11: Peripheral Voltage +5V
TP8 VPE30: Peripheral Voltage +30V
TP9 VPE31: Peripheral Voltage +24V
TP10 GND PE: Peripheral Ground

OLD VERSION
CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 3 of 9
INPUT SECTION

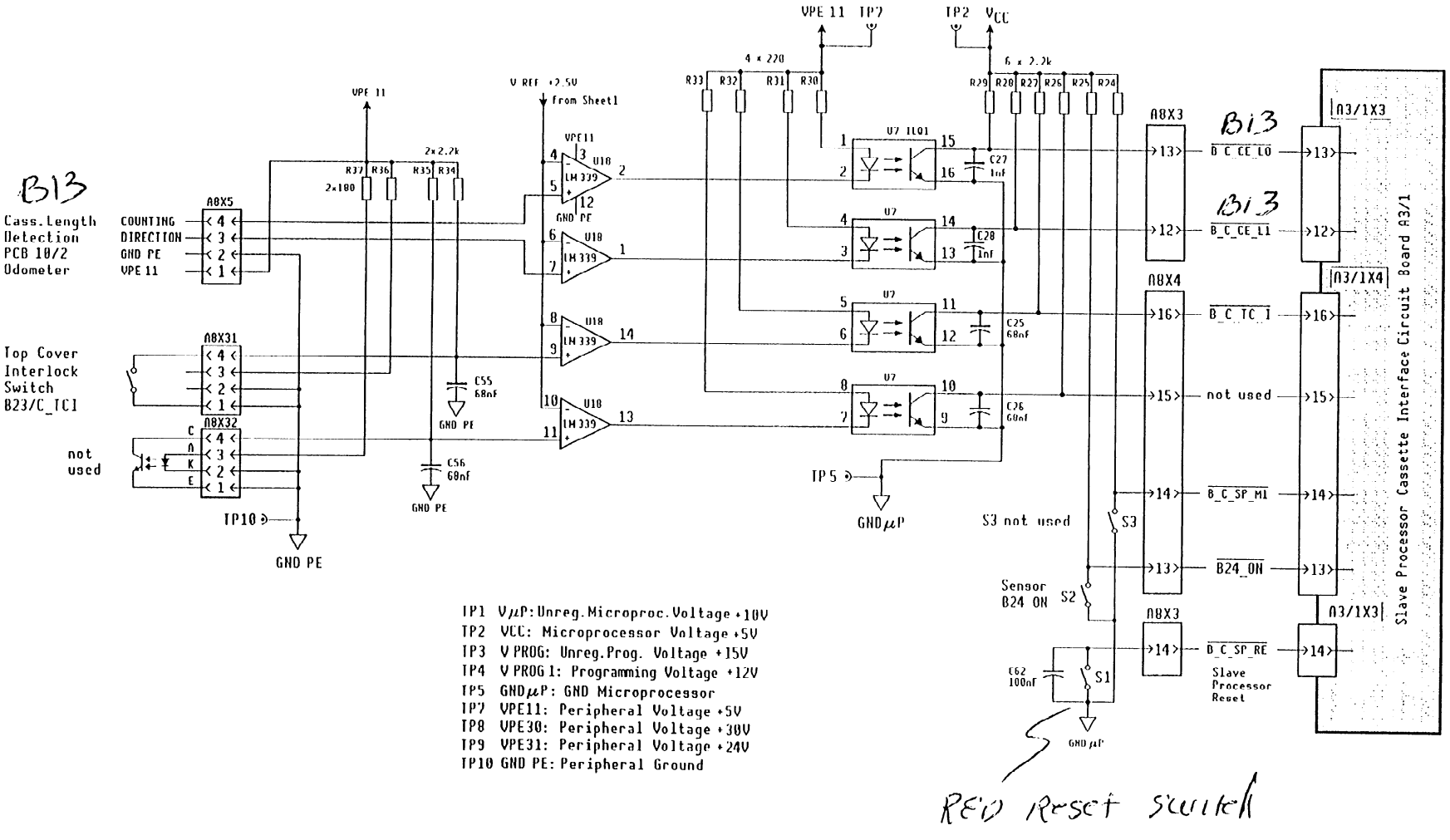


NEW VERSION

CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 3 of 9
INPUT SECTION

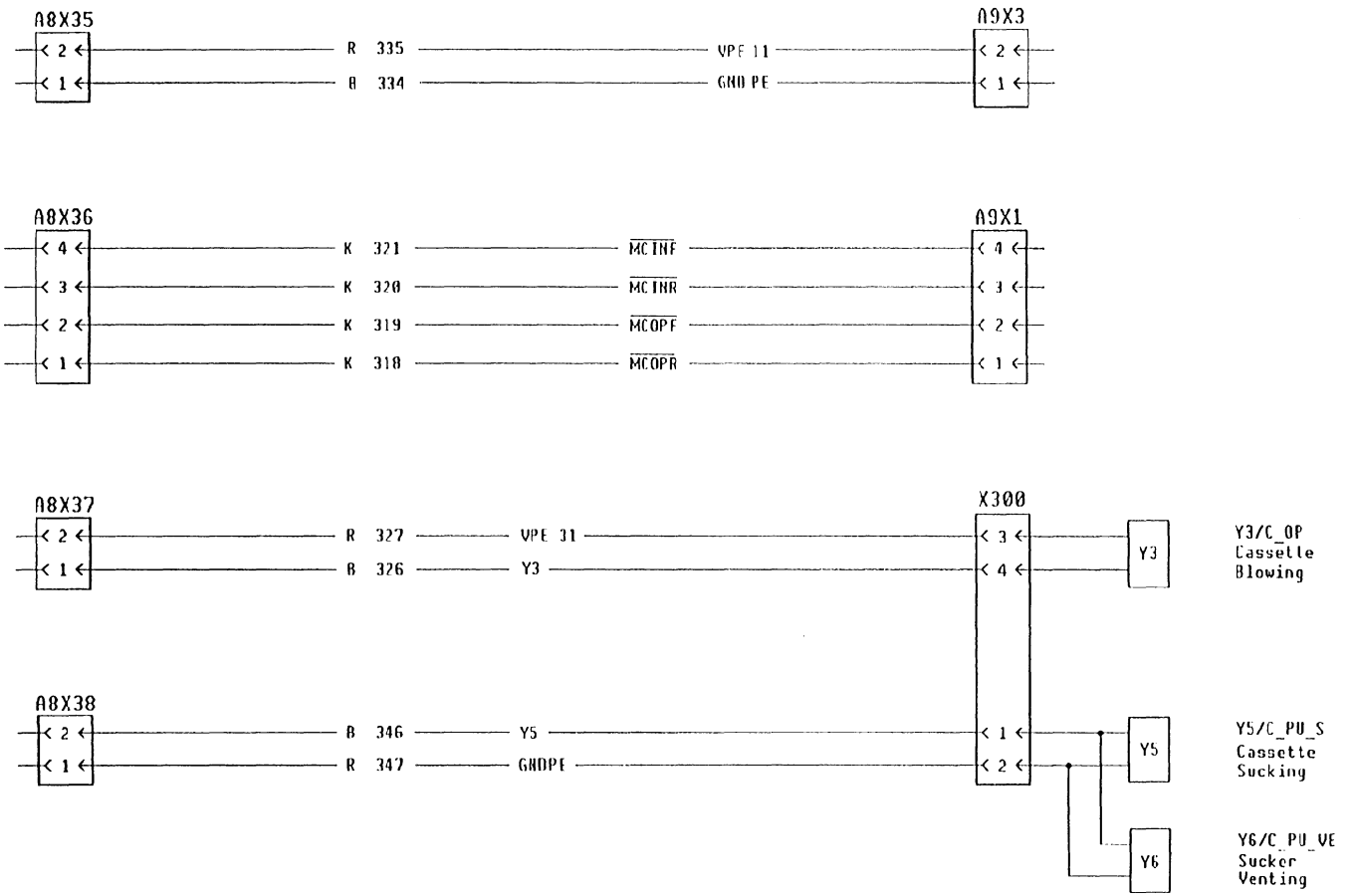


CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 4 of 9
WIRING DIAGRAM

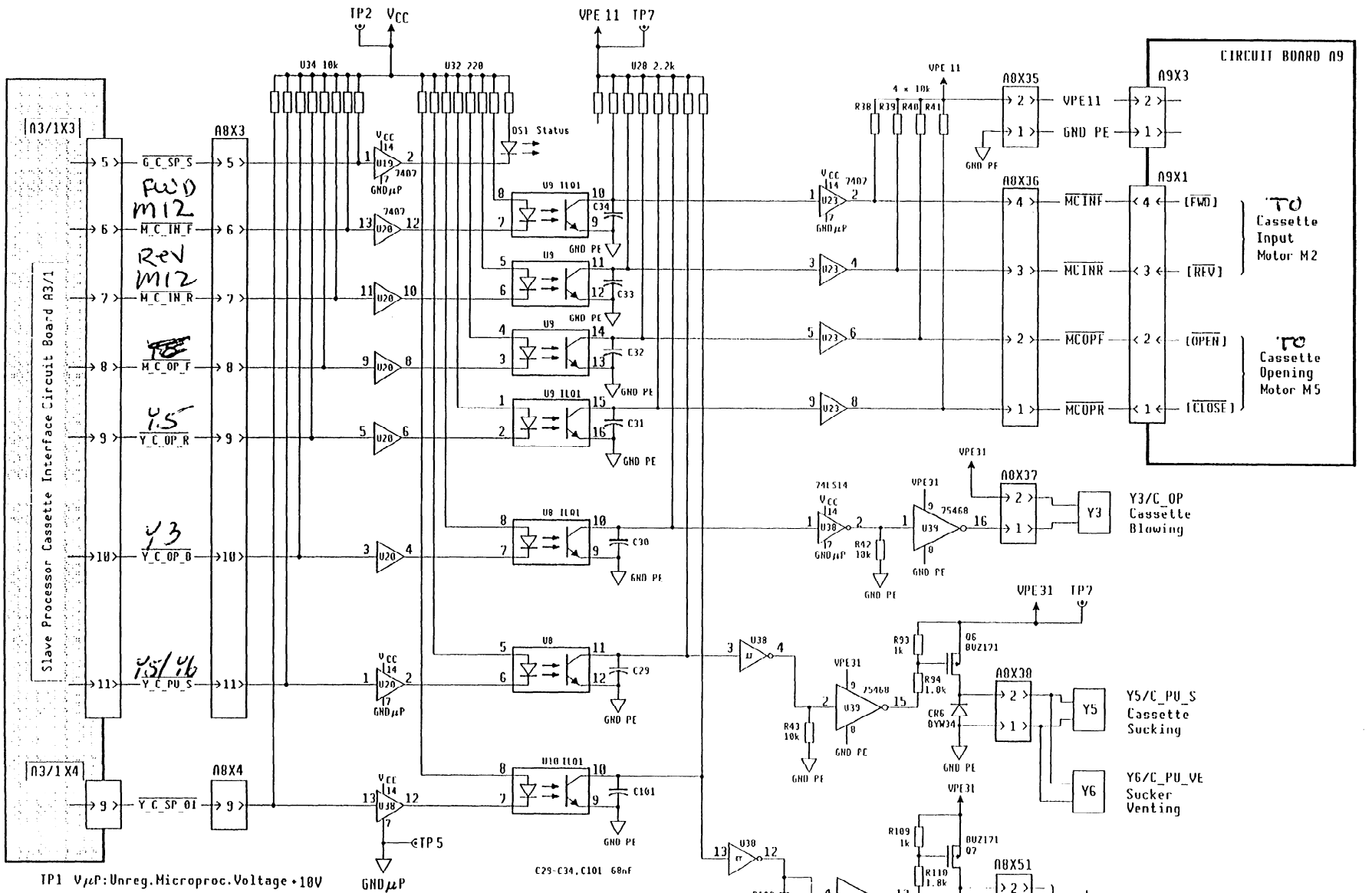


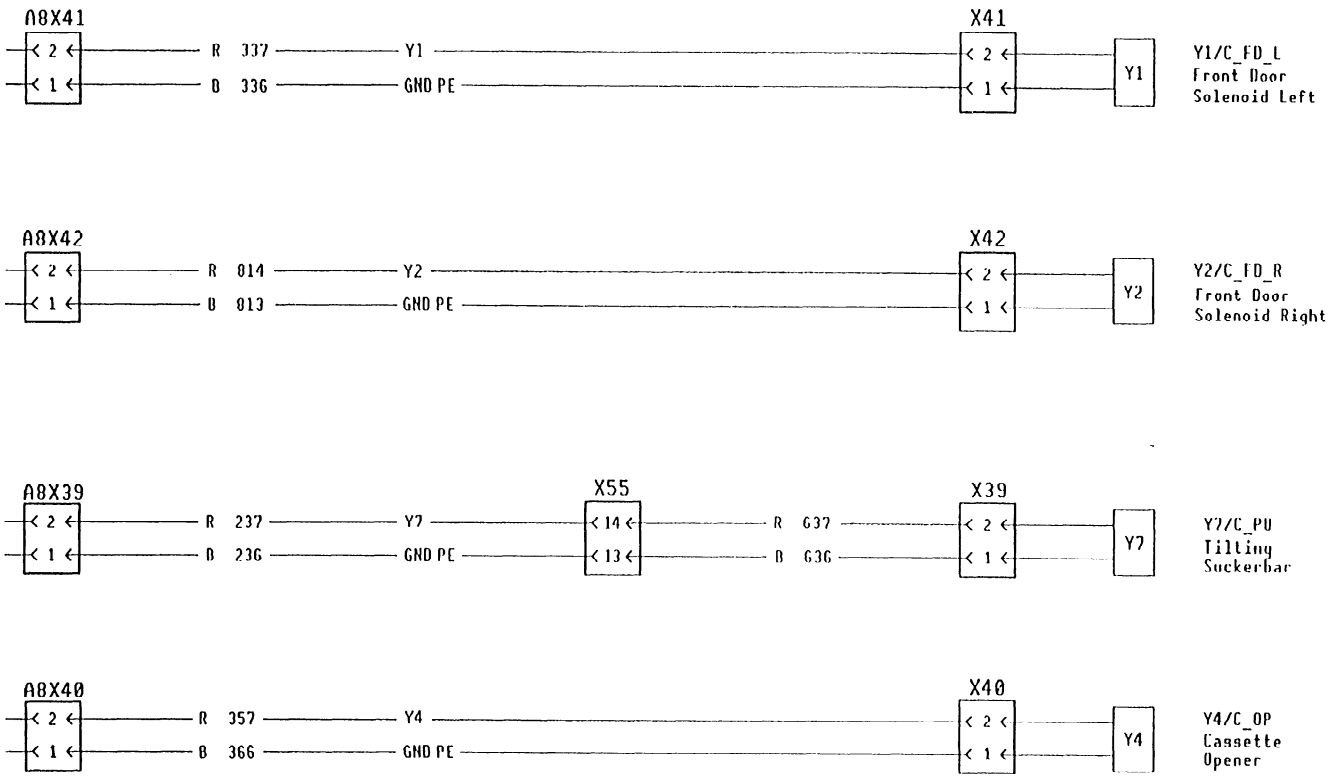
IP1 VμP: Unreg.Microproc.Voltage +10V
IP2 VCC: Microprocessor Voltage +5V
IP3 V PROG: Unreg.Prog. Voltage +15V
IP4 V PROG 1: Programming Voltage +12V
IP5 GNDμP: GND Microprocessor
IP7 VPE11: Peripheral Voltage +5V
IP8 VPE30: Peripheral Voltage +30V
IP9 VPE31: Peripheral Voltage +24V
IP10 GND PE: Peripheral Ground

CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 4 of 9
INPUT SECTION

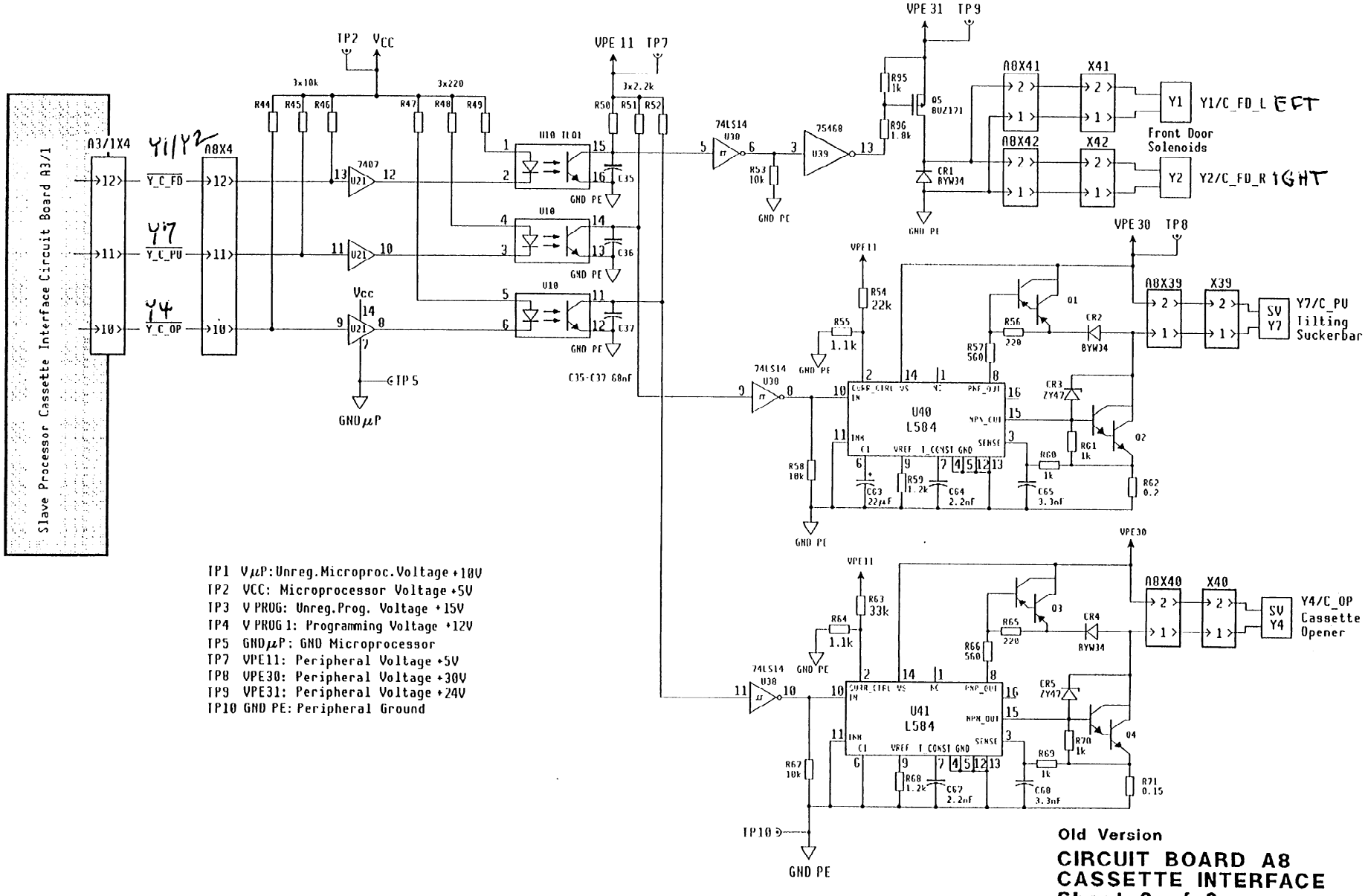


CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 5 of 9
WIRING DIAGRAM


CIRCUIT BOARD A9
A3/1X3
A3/1X4
A8X3
A8X4
A8X35
A8X36
A8X37
A8X38
A8X51
A9X3
A9X1
Slave Processor Cassette Interface Circuit Board A3/1
G_C_SP_S
M_C_IN_F
M_C_IN_R
M_C_OP_F
Y_C_OP_R
Y_C_OP_B
Y_C_PU_S
Y_C_SP_OI
FWD M12
REV M12
Y5
Y3
Y5/Y6
TP2 Vcc
VPE 11 TP7
U34 10k
U32 220
U28 2.2k
DS1 Status
VPE11
GND PE
MCINF
MCINR
MCOPF
MCOPR
[FWD]
[REV]
[OPEN]
[CLOSE]
TO Cassette Input Motor M2
TO Cassette Opening Motor M5
VPE31
Y3/C_OP Cassette Blowing
Y5/C_PU_S Cassette Sucking
Y6/C_PU_VE Sucker Venting
not used
TP1 Vμp: Unreg.Microproc.Voltage +10V
TP2 VCC: Microprocessor Voltage +5V
TP3 V PROG: Unreg.Prog. Voltage +15V
TP4 V PROG 1: Programming Voltage +12V
TP5 GNDμP: GND Microprocessor
TP7 VPE11: Peripheral Voltage +5V
TP8 VPE30: Peripheral Voltage +30V
TP9 VPE31: Peripheral Voltage +24V
TP10 GND PE: Peripheral Ground
C29-C34, C101 68nF
CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 5 of 9
OUTPUT SECTION



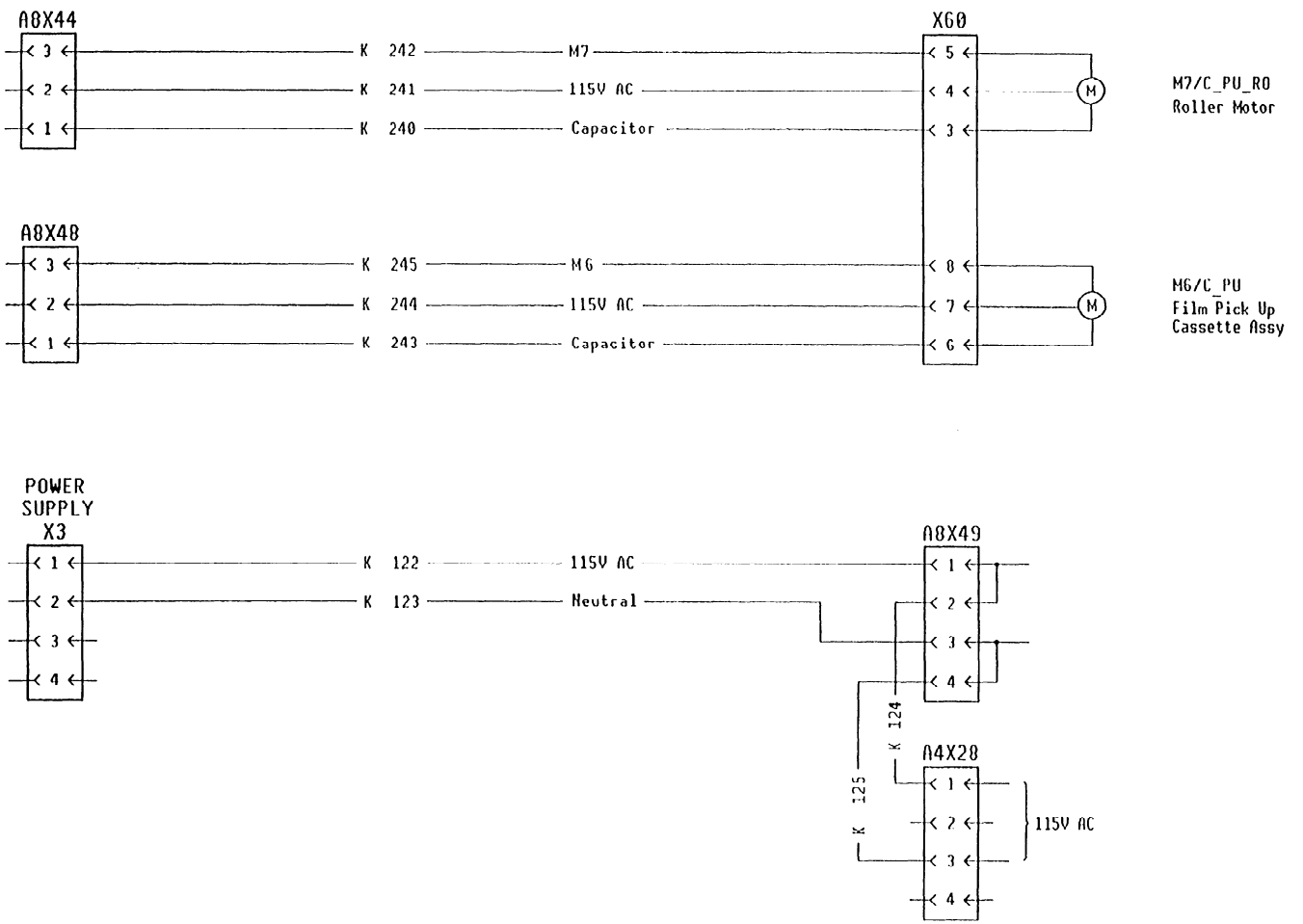
CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 6 of 9
WIRING DIAGRAM



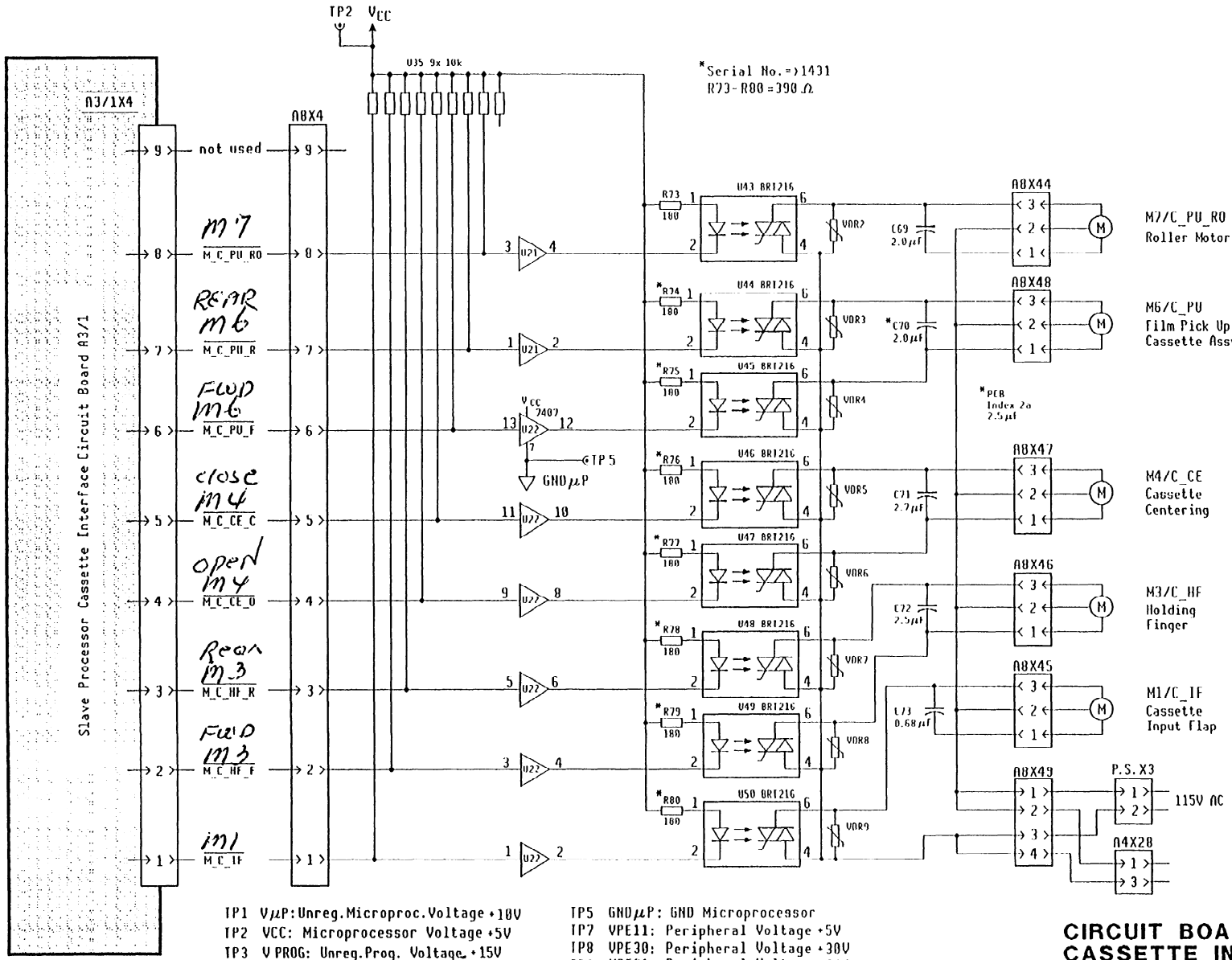
TP1 VµP: Unreg. Microproc. Voltage +18V
TP2 VCC: Microprocessor Voltage +5V
TP3 V PROG: Unreg. Prog. Voltage +15V
TP4 V PROG 1: Programming Voltage +12V
TP5 GNDµP: GND Microprocessor
TP7 VPE11: Peripheral Voltage +5V
TP8 VPE30: Peripheral Voltage +30V
TP9 VPE31: Peripheral Voltage +24V
TP10 GND PE: Peripheral Ground

Old Version

CIRCUIT BOARD A8 CASSETTE INTERFACE Sheet 6 of 9 OUTPUT SECTION



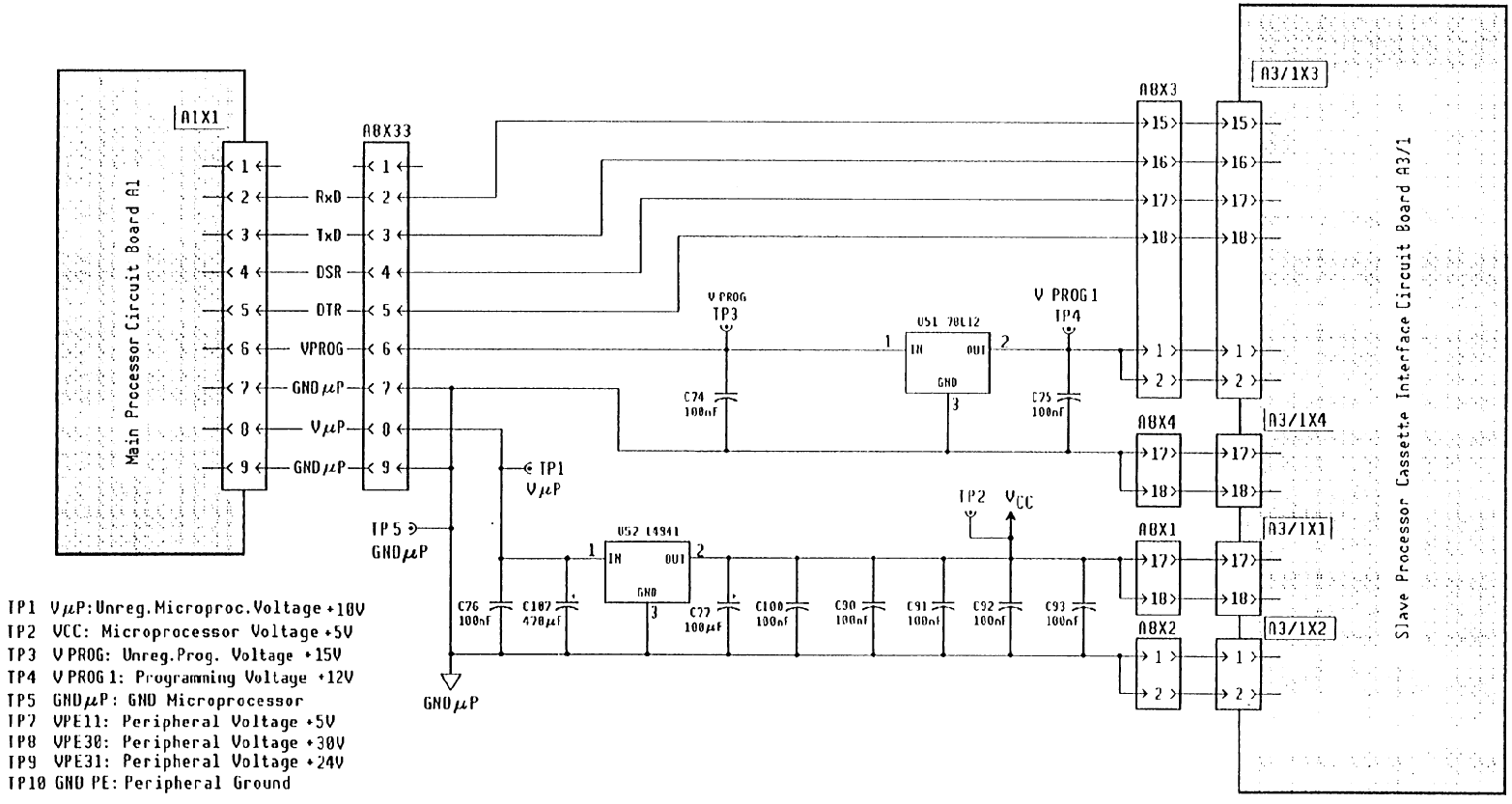
CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 7 of 9
WIRING DIAGRAM



TP1 VµP: Unreg. Microproc. Voltage +18V
TP2 VCC: Microprocessor Voltage +5V
TP3 V PROG: Unreg. Prog. Voltage +15V
TP4 V PROG 1: Programming Voltage +12V

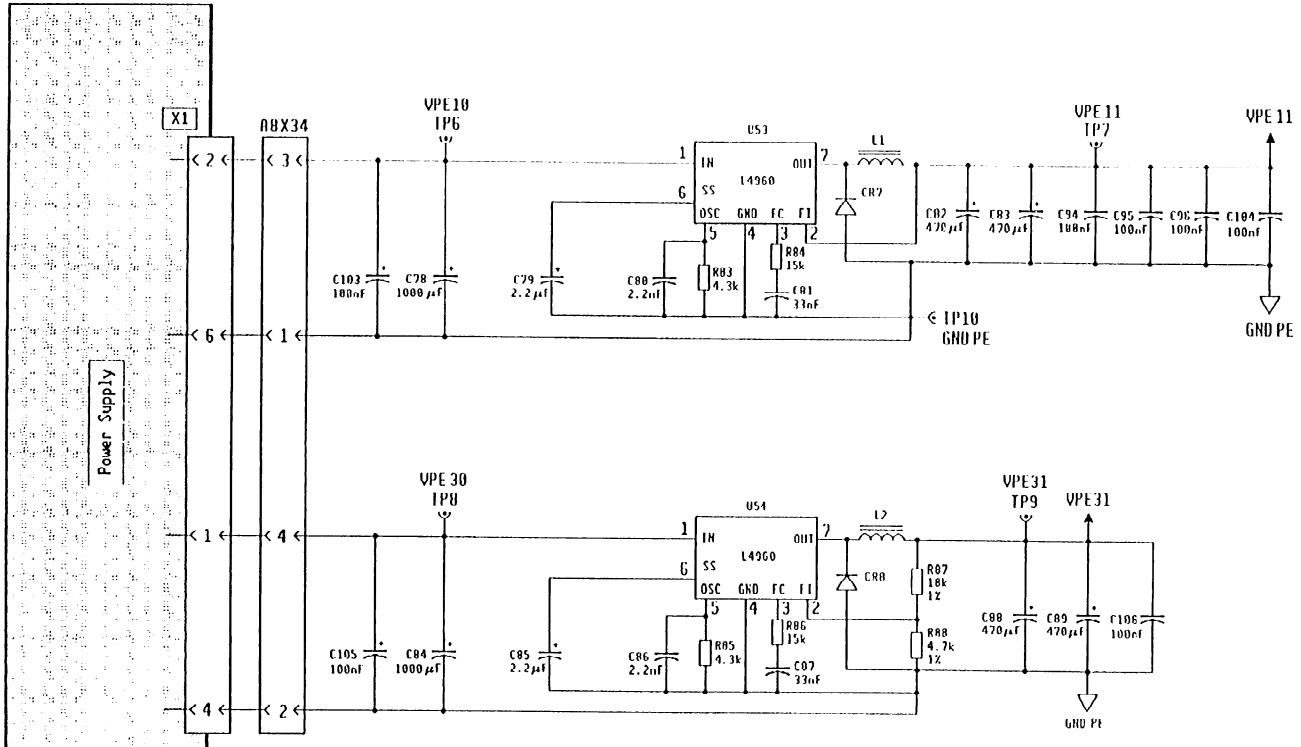
TP5 GNDµP: GND Microprocessor
TP7 VPE11: Peripheral Voltage +5V
TP8 VPE30: Peripheral Voltage +30V
TP9 VPE31: Peripheral Voltage +24V
TP10 GND PE: Peripheral Ground

CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 7 of 9
OUTPUT SECTION



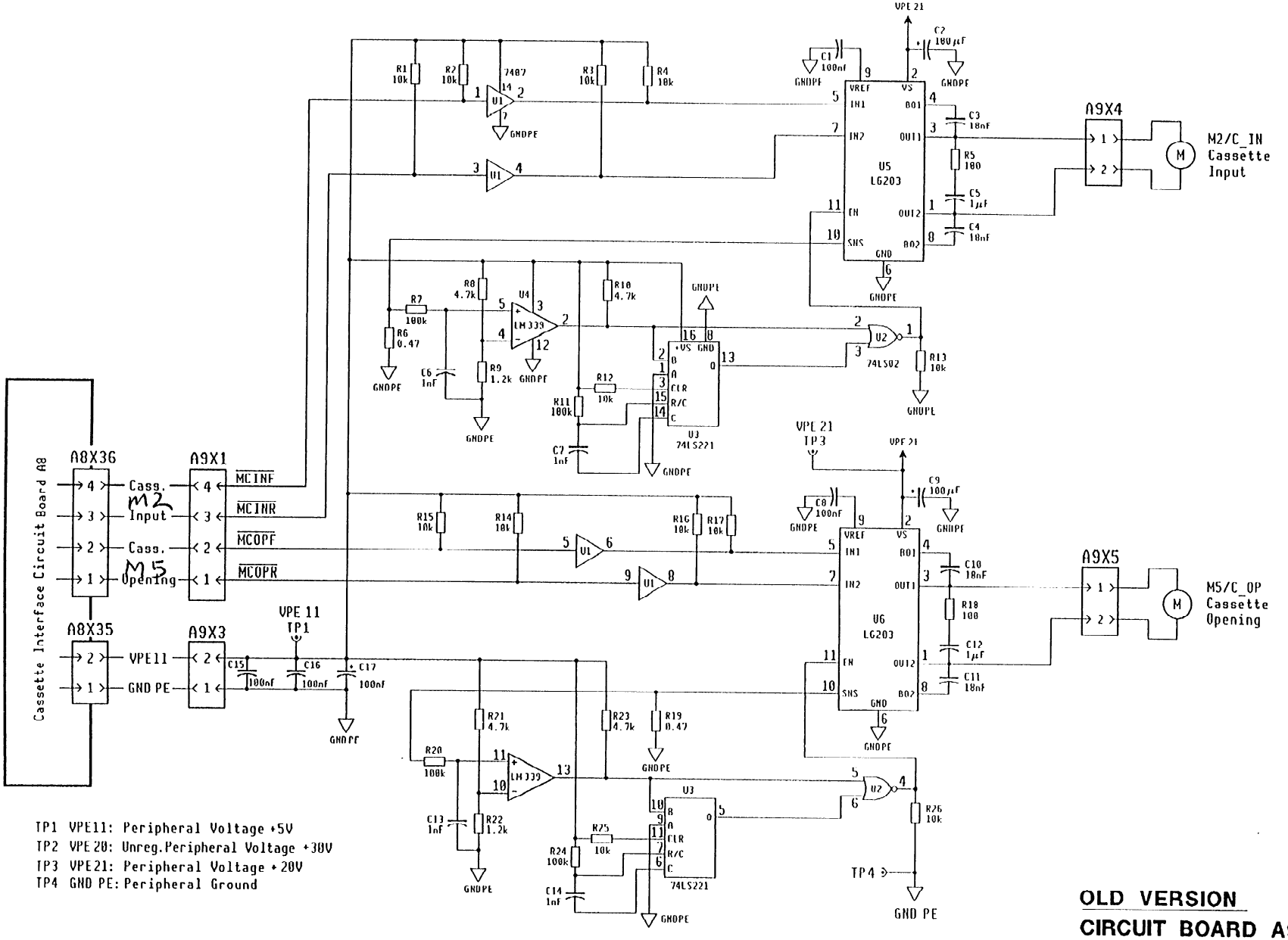
TP1 V µP: Unreg. Microproc. Voltage +10V
TP2 VCC: Microprocessor Voltage +5V
TP3 V PROG: Unreg. Prog. Voltage +15V
TP4 V PROG 1: Programming Voltage +12V
TP5 GND µP: GND Microprocessor
TP7 VPE11: Peripheral Voltage +5V
TP8 VPE30: Peripheral Voltage +30V
TP9 VPE31: Peripheral Voltage +24V
TP10 GND PE: Peripheral Ground

CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 8 of 9
RS232



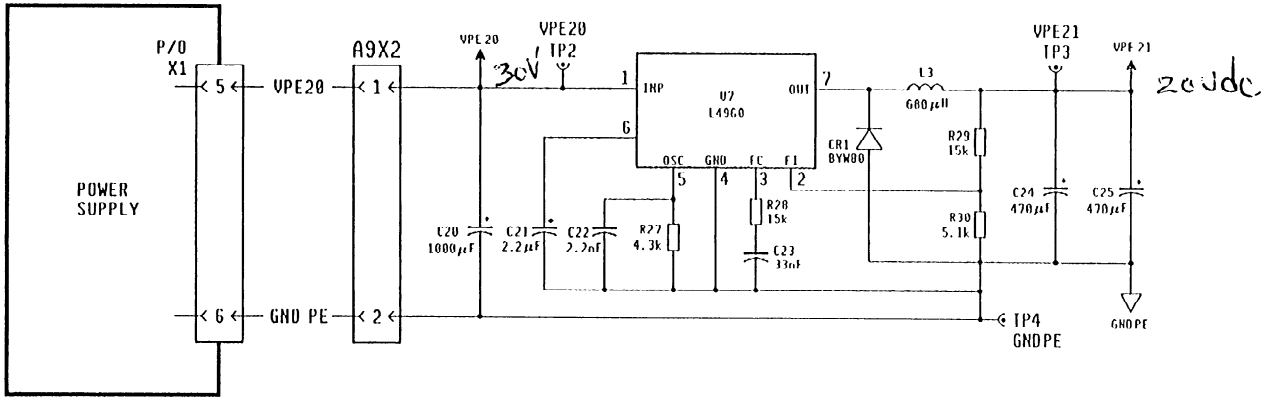
IP1 VμP: Unreg. Microproc. Voltage +10V
IP2 VCC: Microprocessor Voltage +5V
IP3 V PROG: Unreg. Prog. Voltage +15V
IP4 V PROG 1: Programming Voltage +12V
IP5 GNDμP: GND Microprocessor
IP7 VPE11: Peripheral Voltage +5V
IP8 VPE30: Peripheral Voltage +30V
IP9 VPE31: Peripheral Voltage +24V
IP10 GND PE: Peripheral Ground

CIRCUIT BOARD A8
CASSETTE INTERFACE
Sheet 9 of 9
POWER REGULATOR



OLD VERSION

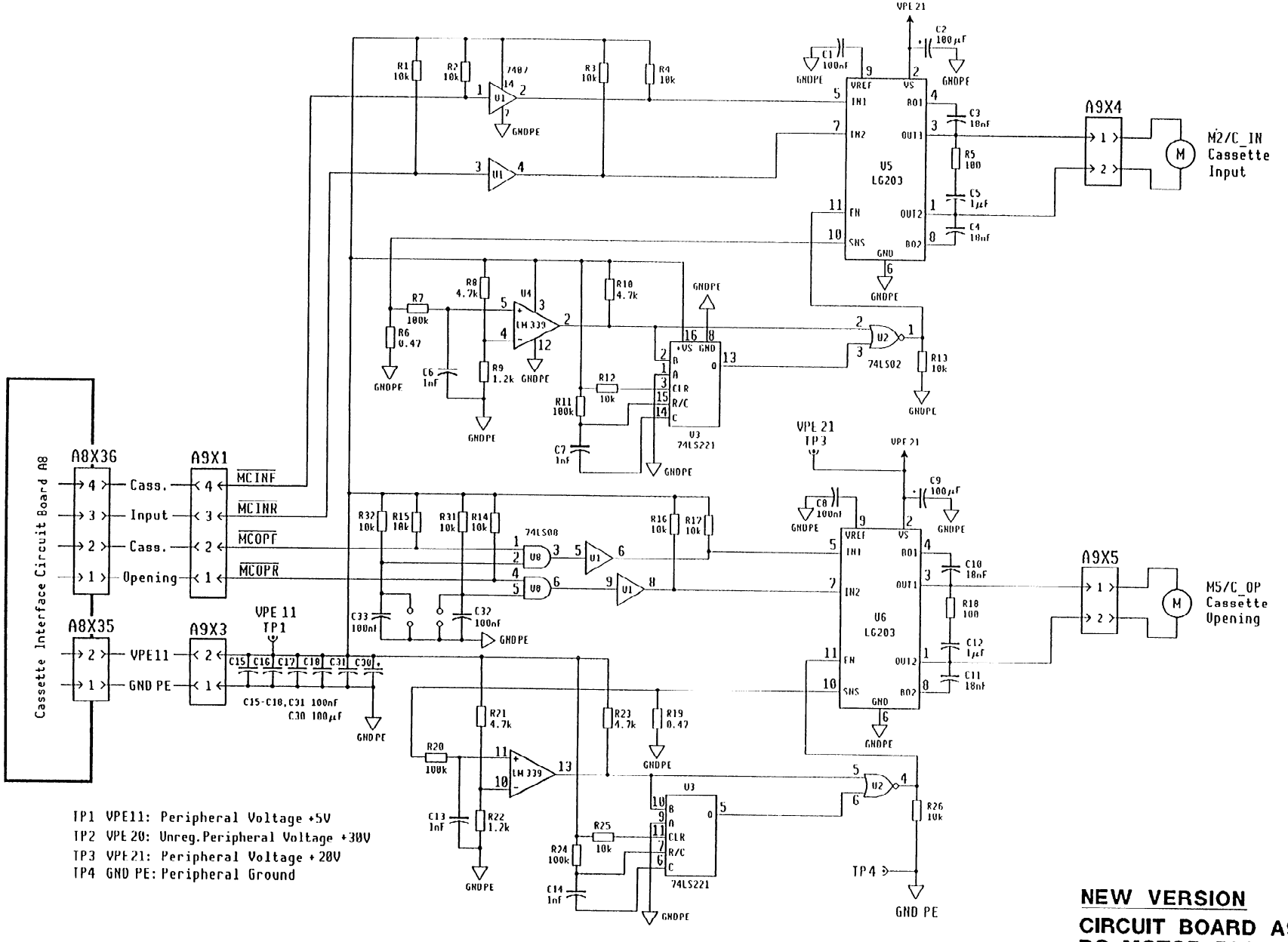
CIRCUIT BOARD A9
DC MOTOR DRIVE

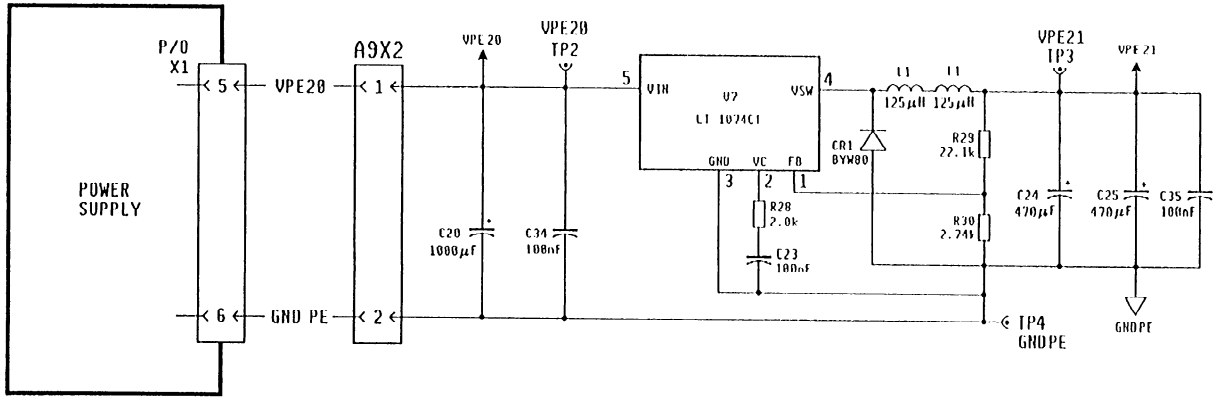


TP1 VPE11: Peripheral Voltage +5V
TP2 VPE 20: Unreg.Peripheral Voltage +30V
TP3 VPE21: Peripheral Voltage + 20V
TP4 GND PE: Peripheral Ground

OLD VERSION

CIRCUIT BOARD A9
DC MOTOR DRIVER
Sheet 2 of 2


Cassette Interface Circuit Board A8
A8X36
A8X35
A9X1
A9X3
A9X4
A9X5
Cass. Input
Cass. Opening
VPE11
GND PE
MCINF
MCINR
MCOPF
MCOPR
VPE 11 TP1
VPE 21
VPE 21 TP3
U5 LG203
U6 LG203
LM 339
74LS08
74LS02
74LS221
M2/C_IN Cassette Input
M5/C_OP Cassette Opening
TP1 VPE11: Peripheral Voltage +5V
TP2 VPE 20: Unreg.Peripheral Voltage +30V
TP3 VPE 21: Peripheral Voltage + 20V
TP4 GND PE: Peripheral Ground
NEW VERSION
CIRCUIT BOARD A9
DC MOTOR DRIVE



TP1 VPE11: Peripheral Voltage +5V
TP2 VPE 20: Unreg.Peripheral Voltage +30V
TP3 VPE21: Peripheral Voltage +20V
TP4 GND PE: Peripheral Ground

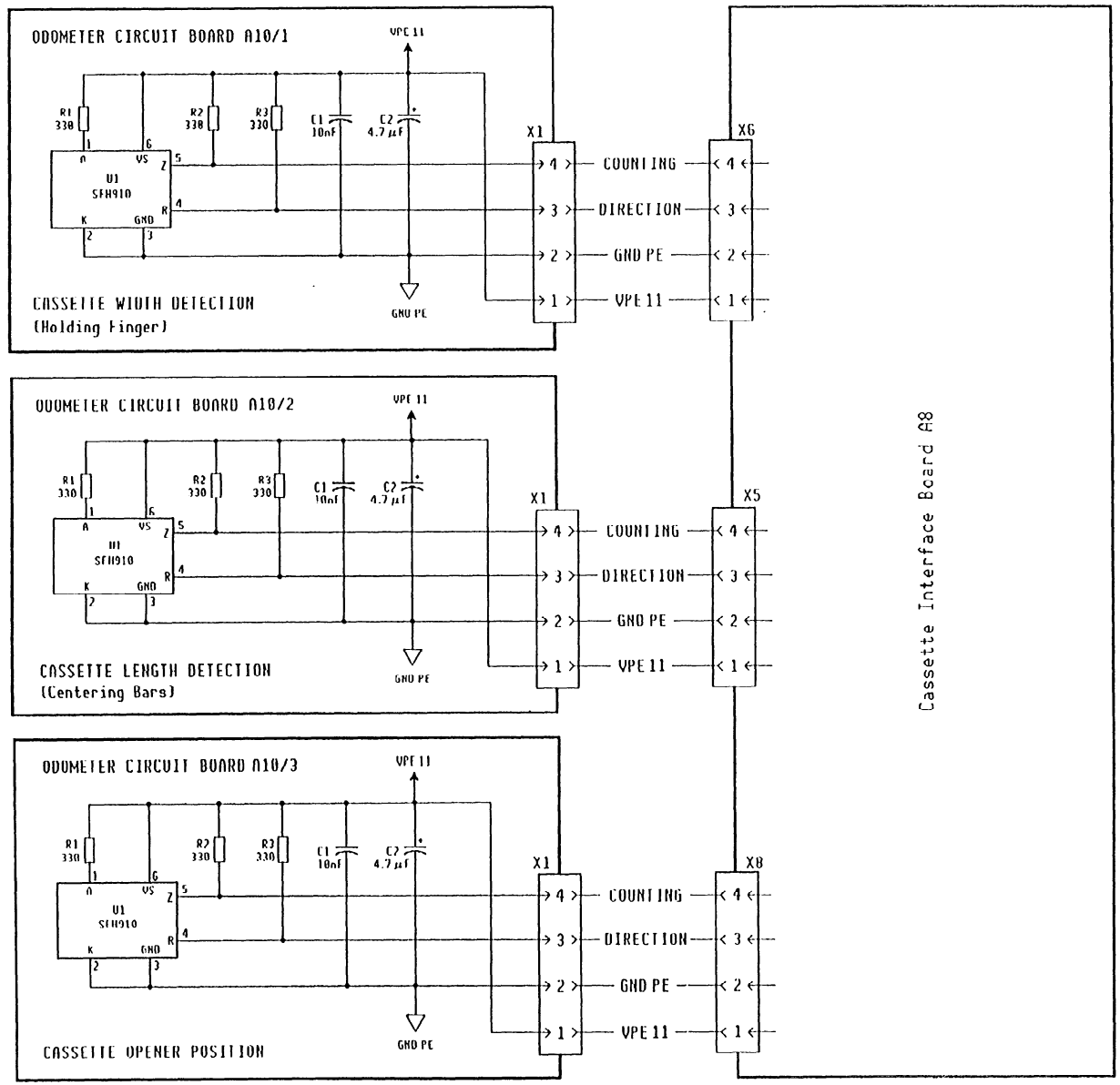
NEW VERSION

CIRCUIT BOARD A9
DC MOTOR DRIVER
Sheet 2 of 2

FROM B8

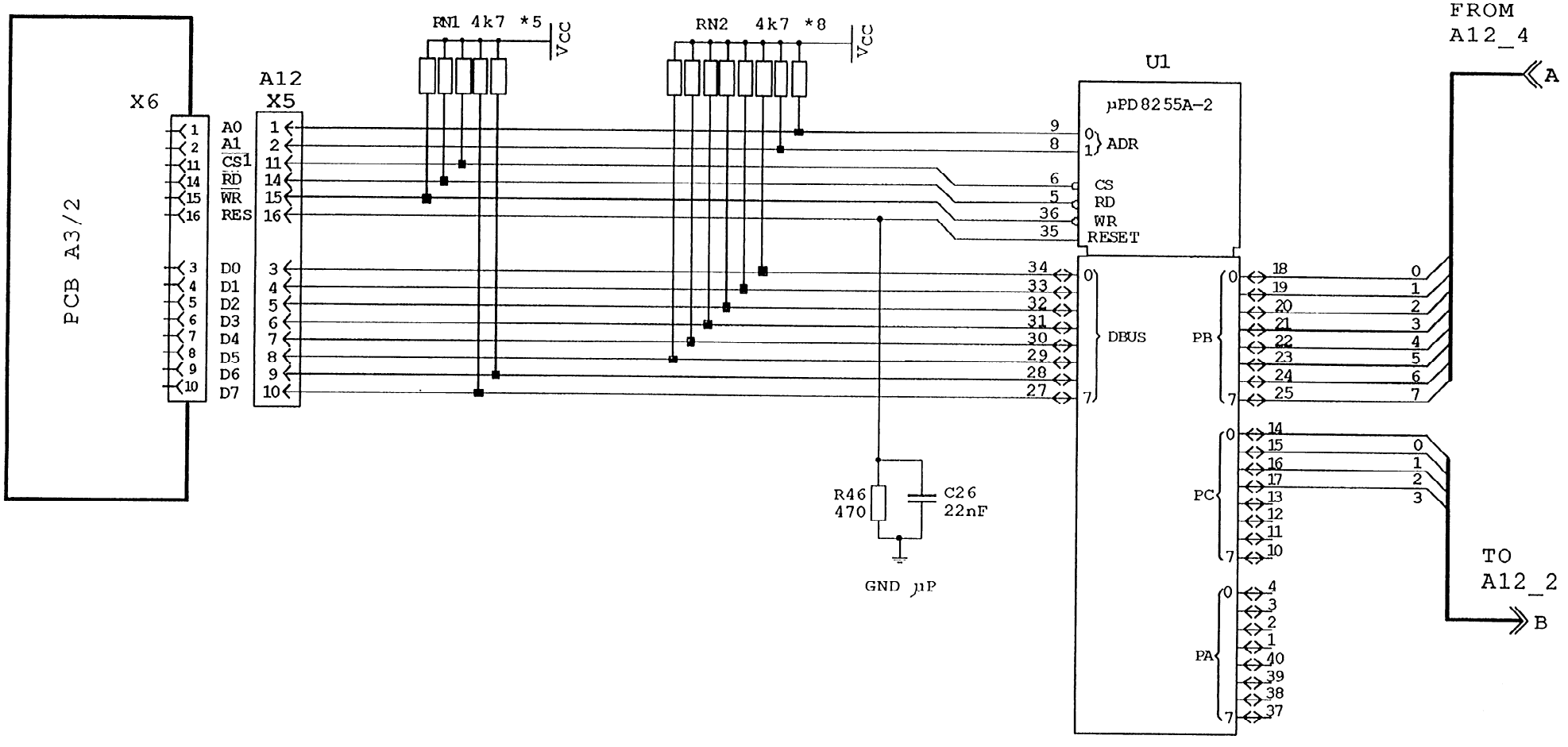
FROM B13

FROM B14

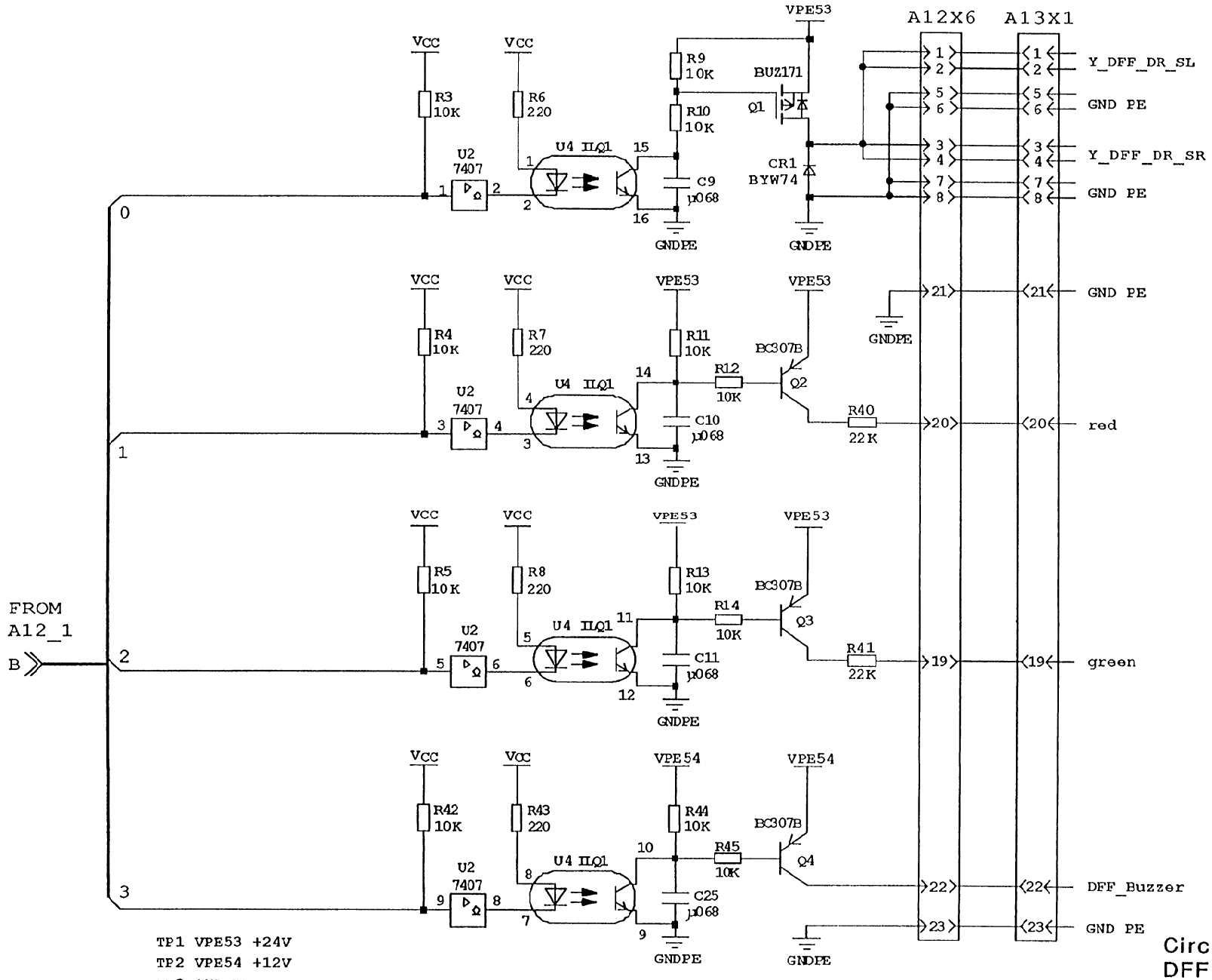


VPE11: Peripheral Voltage +5V
GND PE: Peripheral Ground

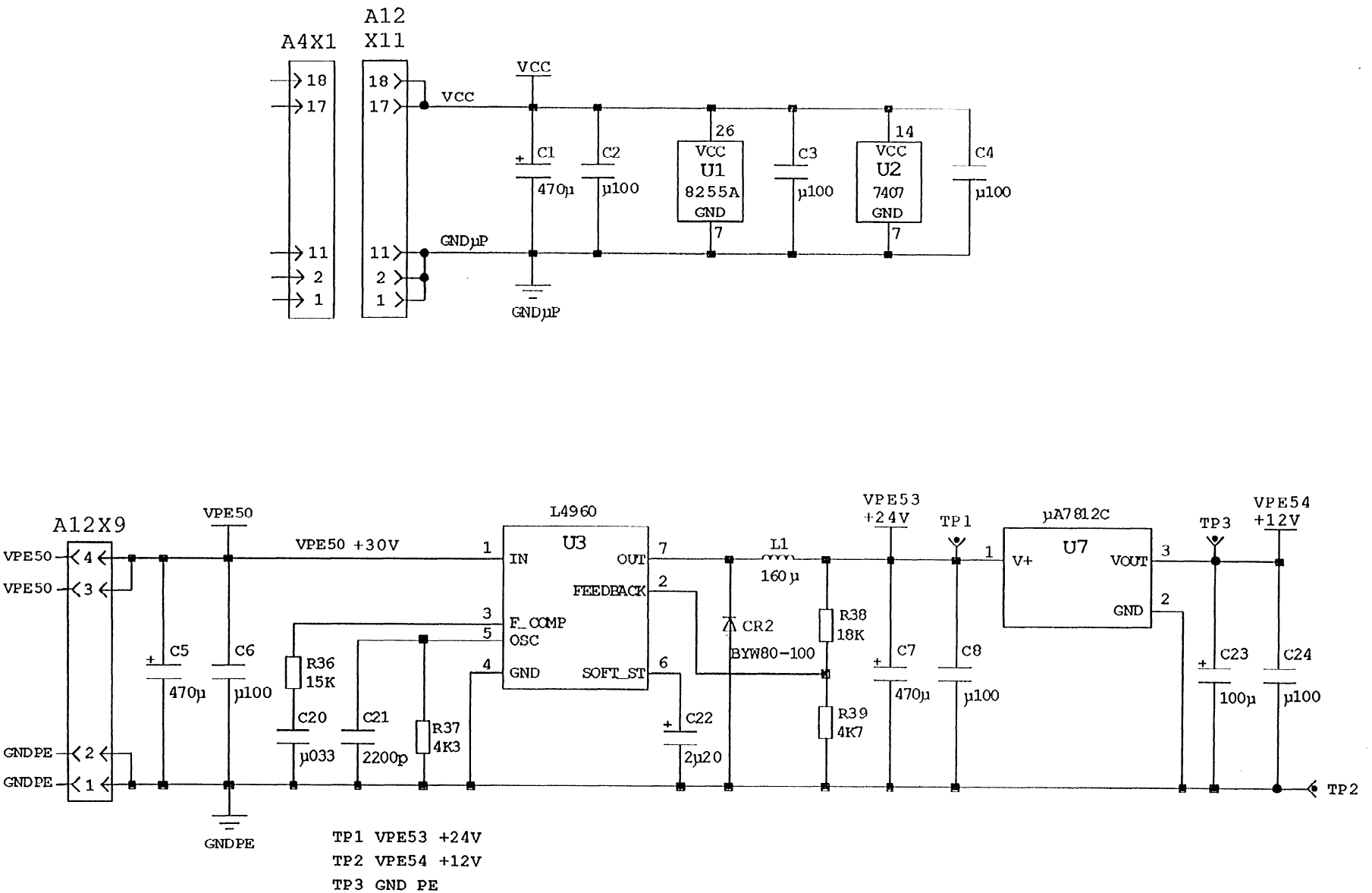
CIRCUIT BOARD A10/1
A10/2 A10/3
ODOMETER



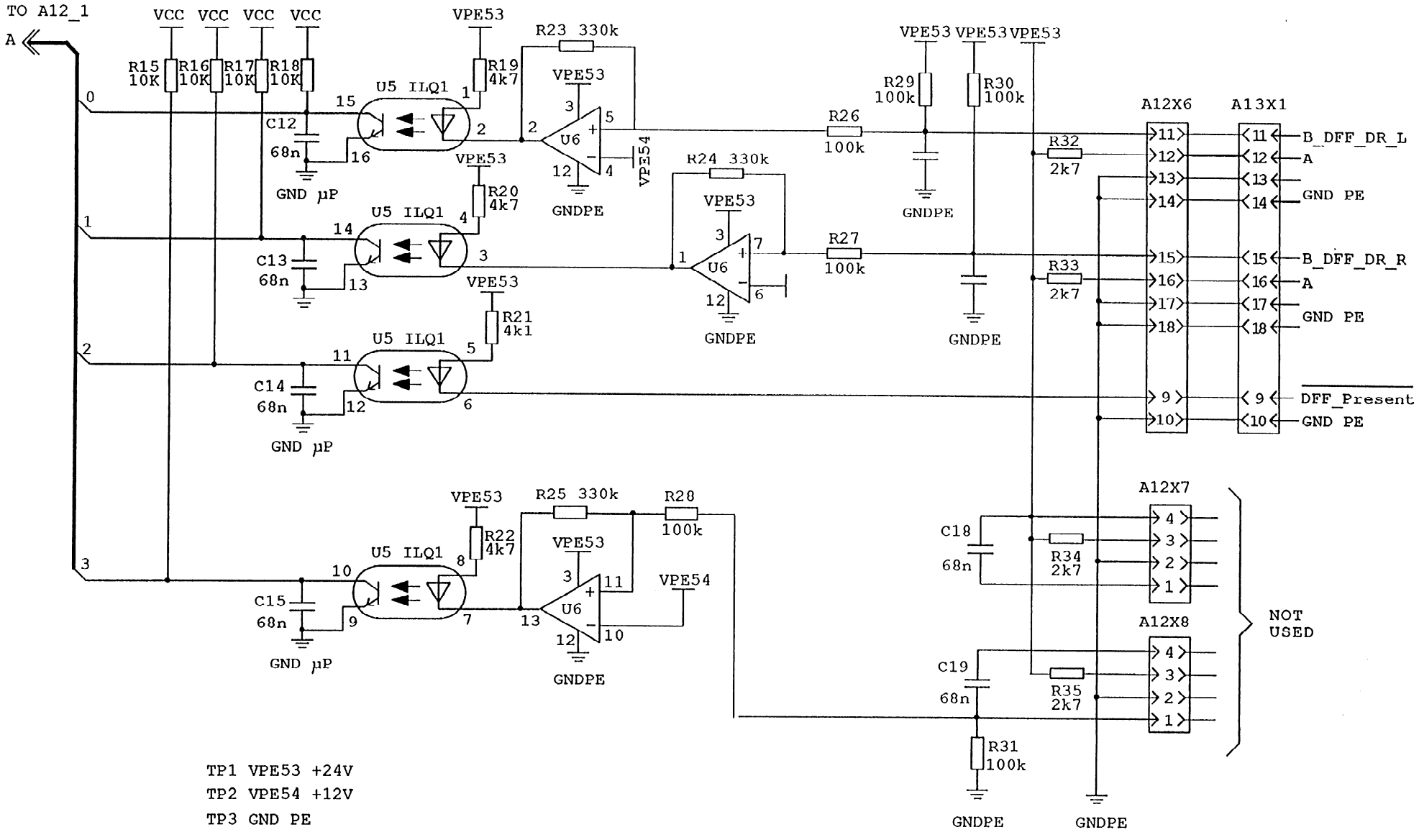
Circuit Board A12
DFF Interface
Sheet 1 of 5



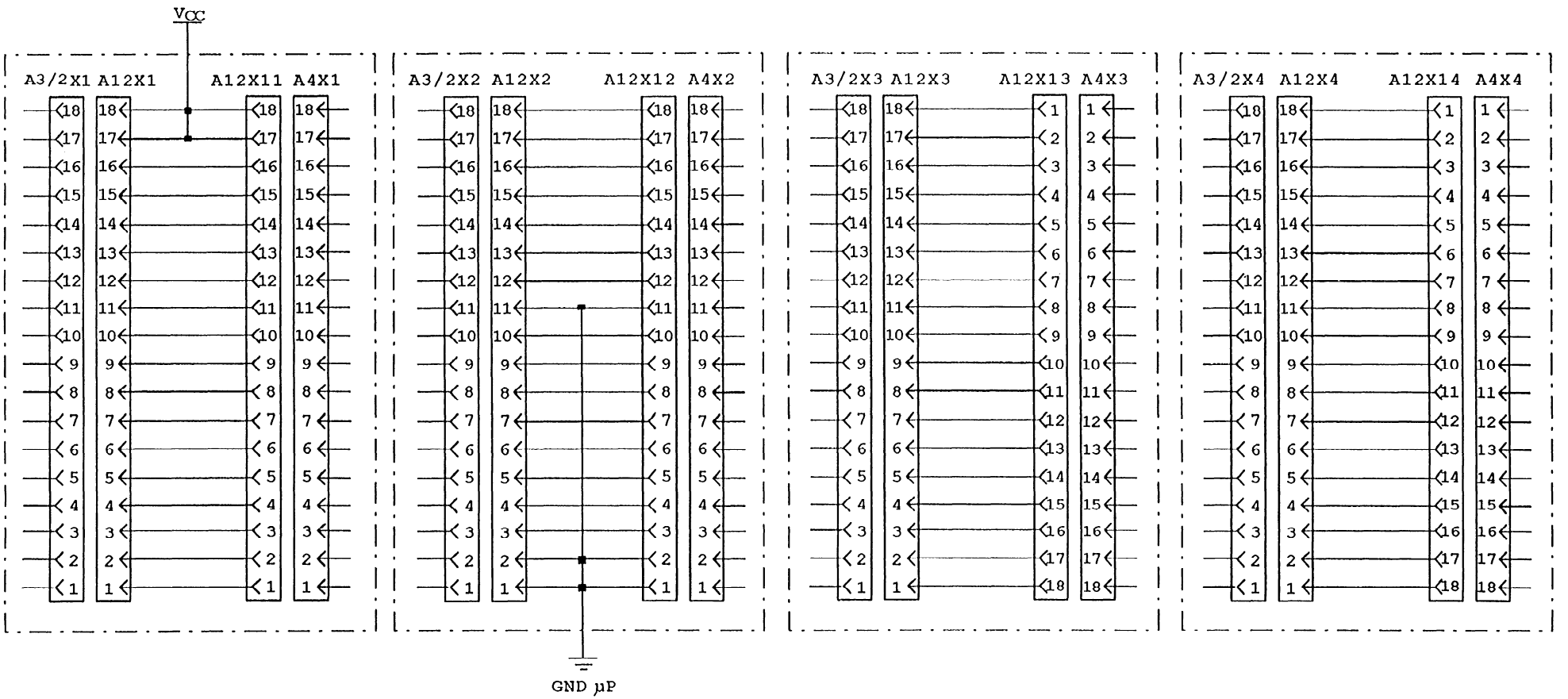
Circuit Board A12
DFF Interface
Sheet 2 of 5



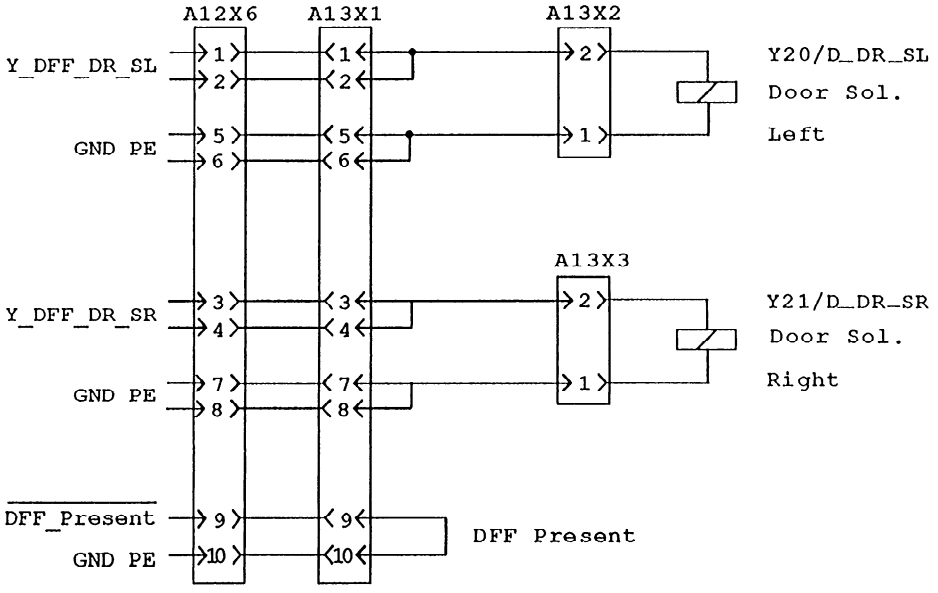
Circuit Board A12
DFF Interface
Sheet 4 of 5

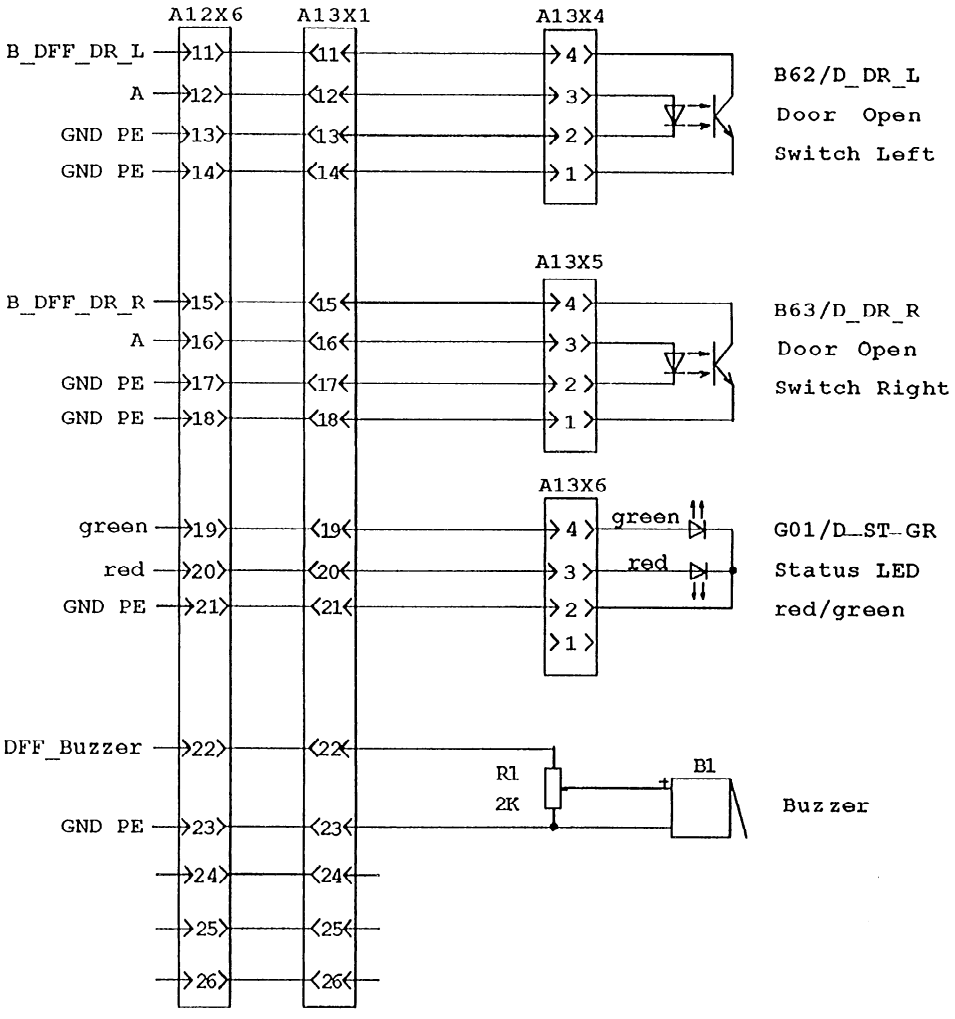


Circuit Board A12
DFF Interface
Sheet 3 of 5

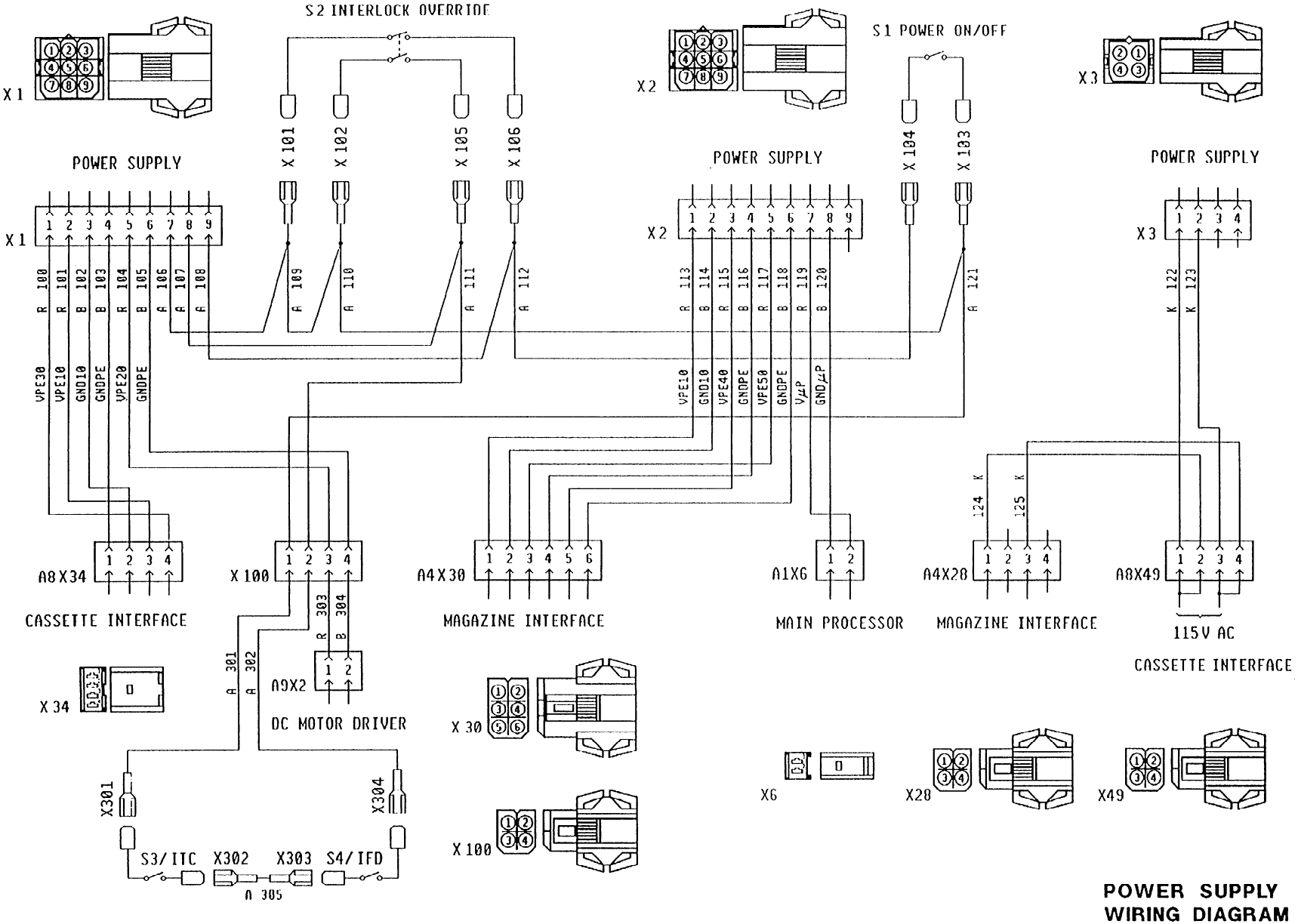


Circuit Board A12
DFF Interface
Sheet 5 of 5

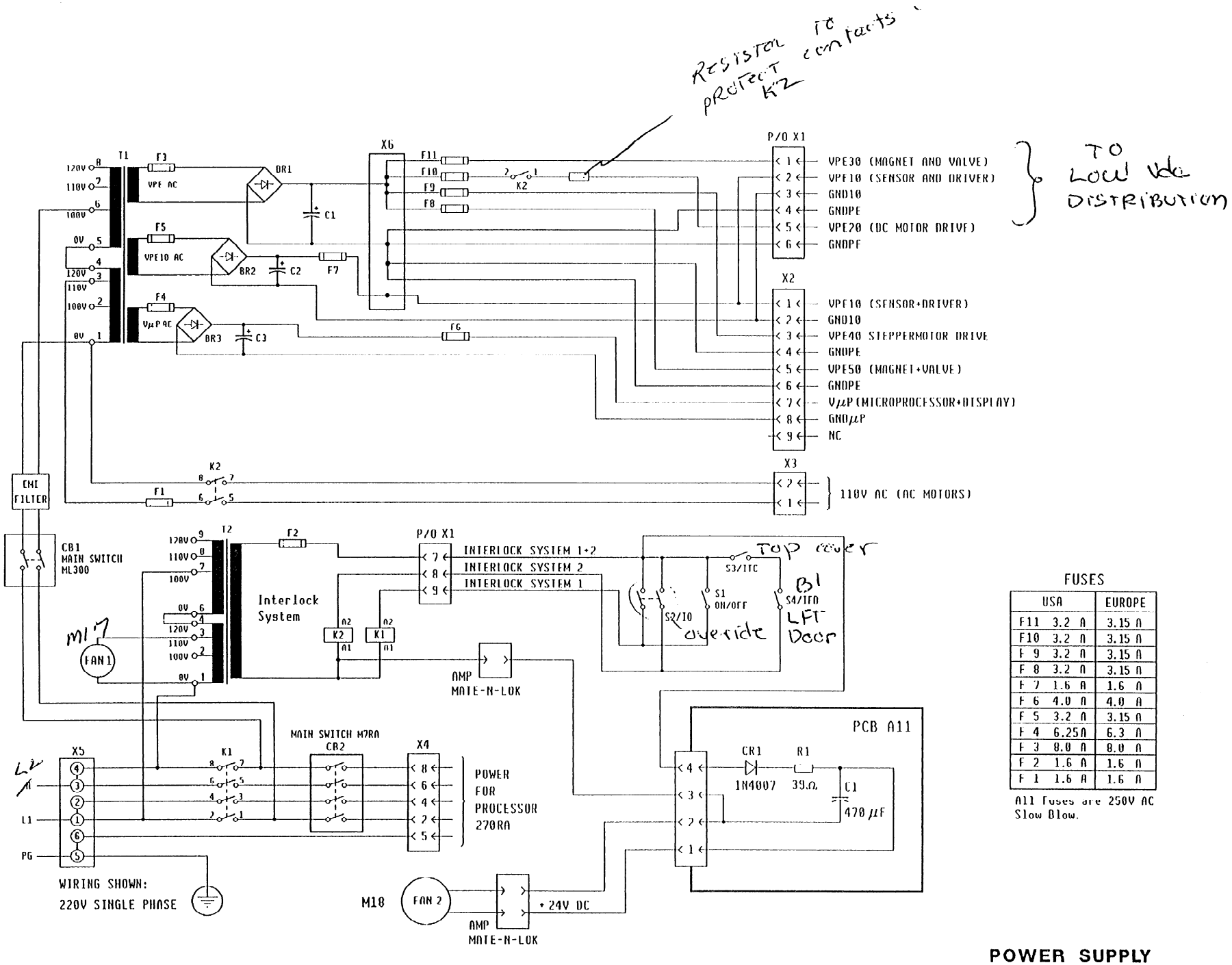




Circuit Board A13
DFF Distribution



POWER SUPPLY WIRING DIAGRAM

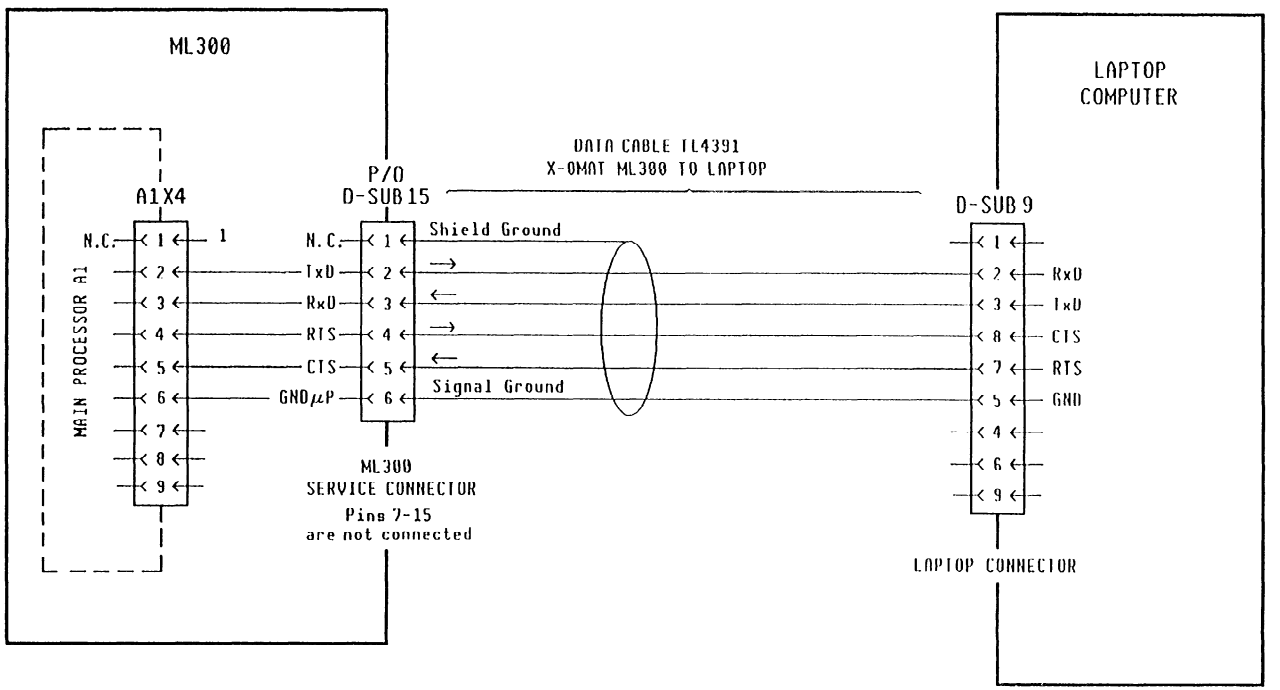


FUSES

	USA	EUROPE
F11	3.2 A	3.15 A
F10	3.2 A	3.15 A
F 9	3.2 A	3.15 A
F 8	3.2 A	3.15 A
F 7	1.6 A	1.6 A
F 6	4.0 A	4.0 A
F 5	3.2 A	3.15 A
F 4	6.25A	6.3 A
F 3	8.0 A	8.0 A
F 2	1.6 A	1.6 A
F 1	1.6 A	1.6 A

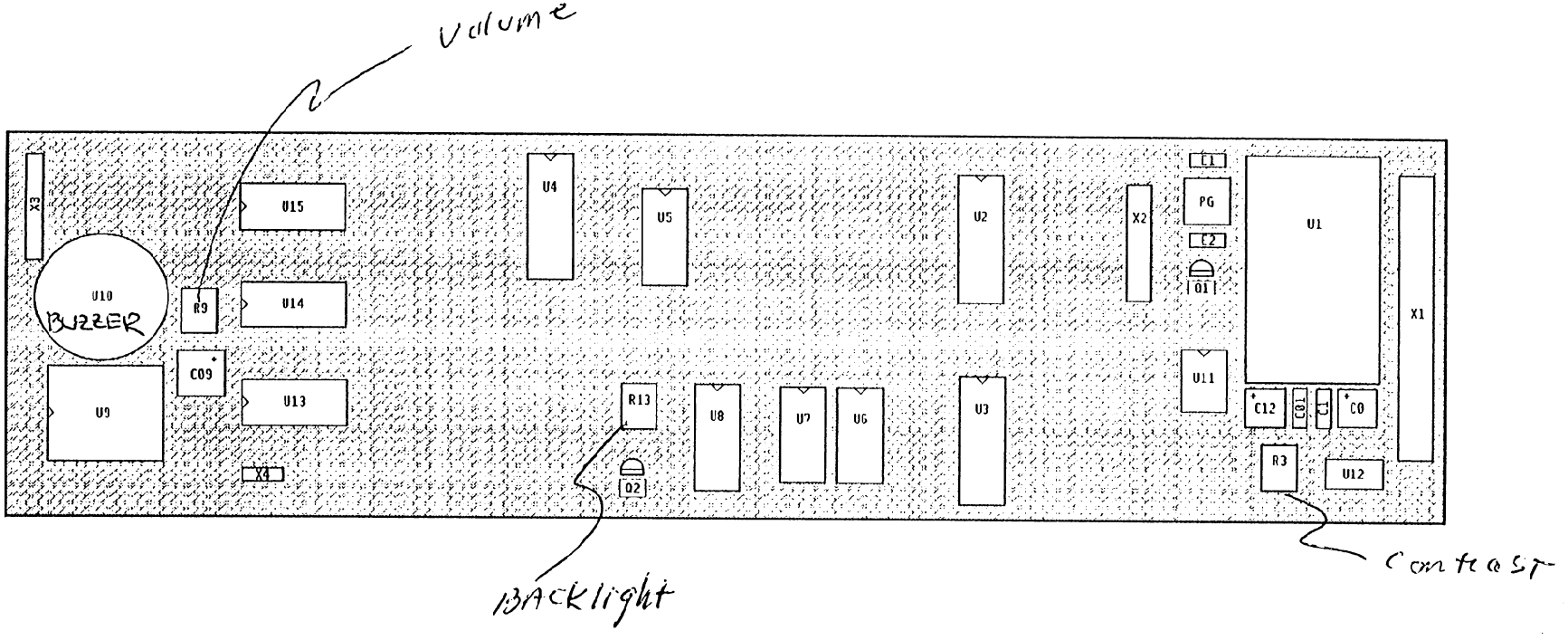
All fuses are 250V AC Slow Blow.

POWER SUPPLY



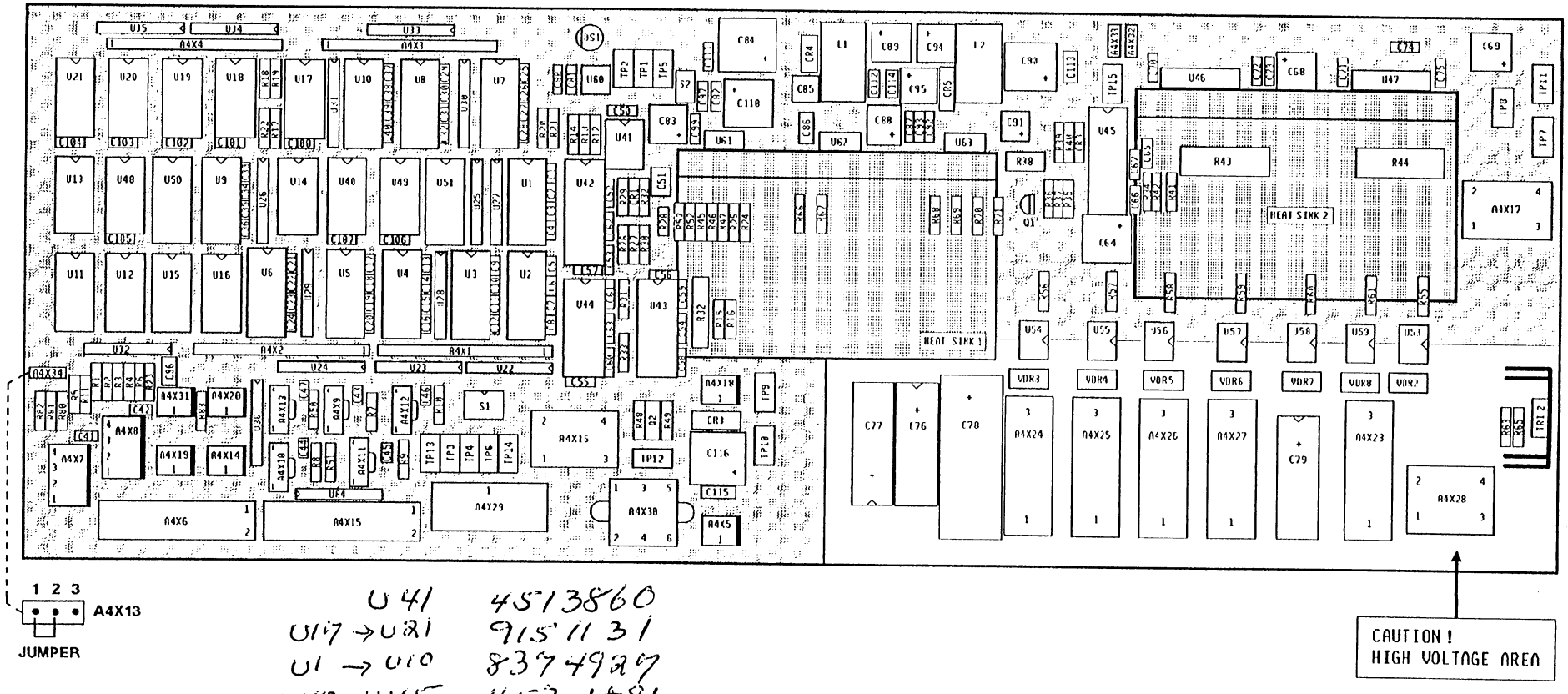
DATA CABLE RS232

4. CIRCUIT BOARD LAYOUTS



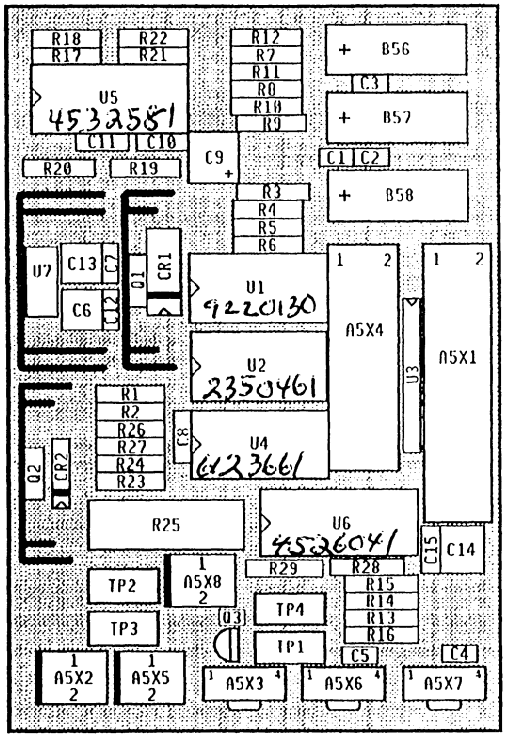
U2, U3, U4	453 2201
U5	453 2491
U6	612 3661
U7	612 3701
U8	452 6041
U9	453 2751
U10	915 2451

CIRCUIT BOARD A2
OPERATOR INTERFACE

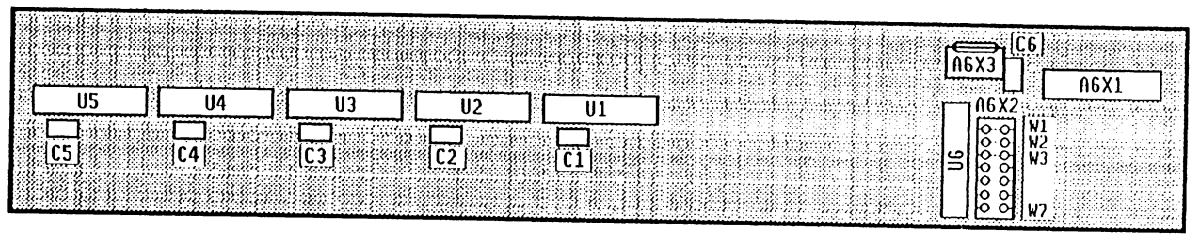


U41	4513860
U17 → U21	9151131
U1 → U10	8374927
U42, U45	4521891
U53, U59	4532561

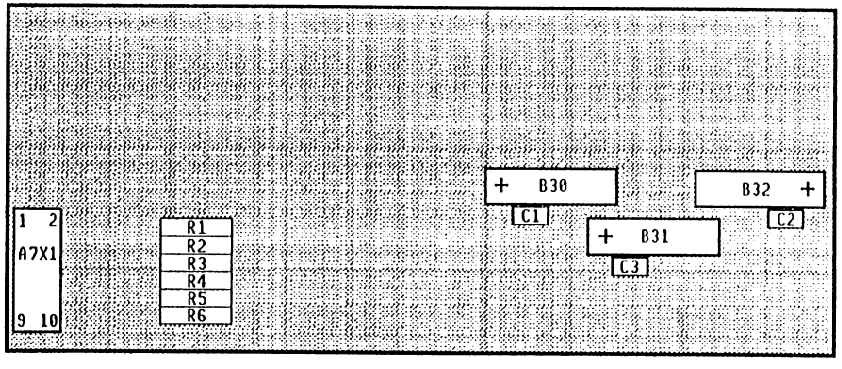
CIRCUIT BOARD A4
MAGAZINE INTERFACE



CIRCUIT BOARD A5
FILMPOCKET



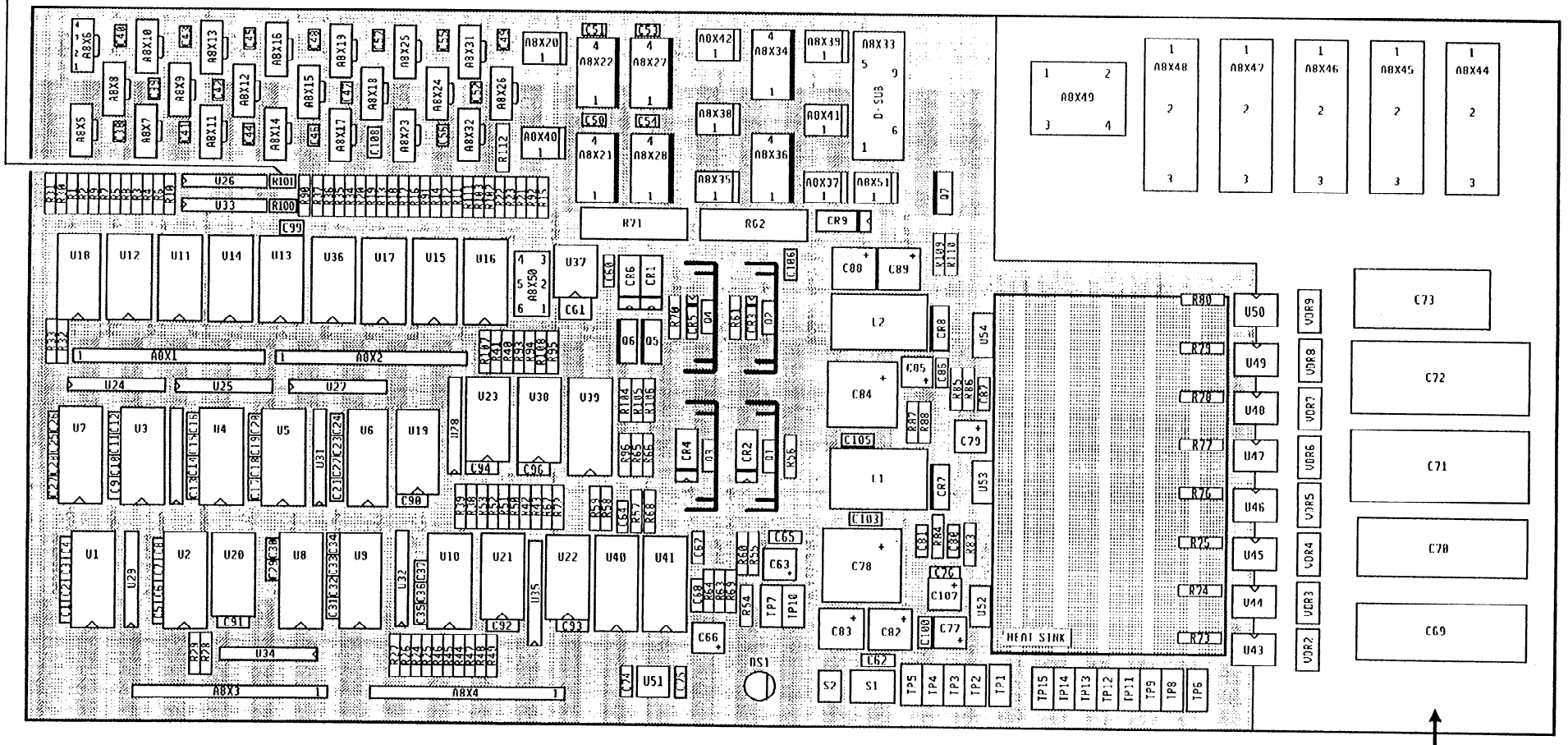
CIRCUIT BOARD A6
MAGAZINE SENSE



CIRCUIT BOARD A7
LEVEL CONTROL

R101 FILM TYPE 2 RIGHT

R100 FILM TYPE 2 LEFT



Normal JUMPER Setting

OLD VERSION A8X50

Normal JUMPER Setting

NEW VERSION A8X50

CAUTION!
HIGH VOLTAGE AREA

U1 → U10 837492 7

U11 → U18 235 0461

U19 → U23 915 11 31

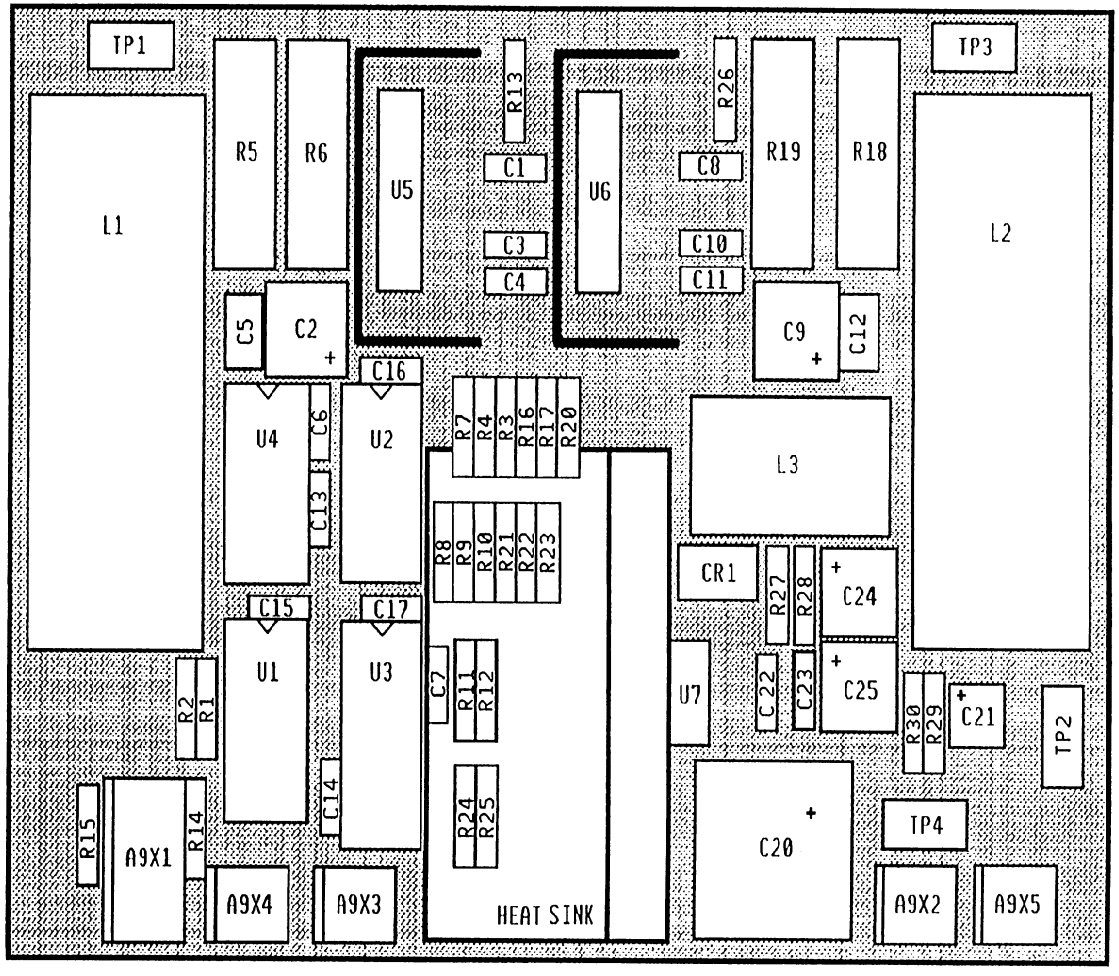
U36 4536141

U38 6123661

U39 452-6041

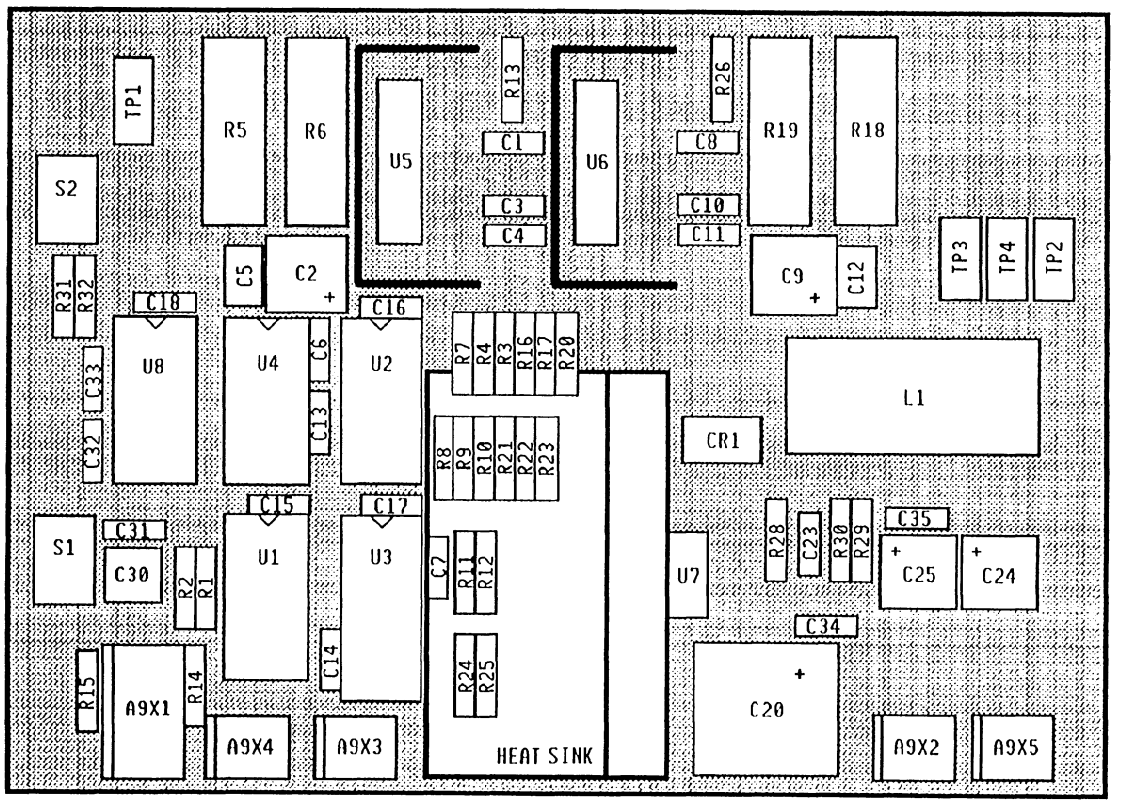
U40, U41 4532581

CIRCUIT BOARD A8
CASSETTE INTERFACE



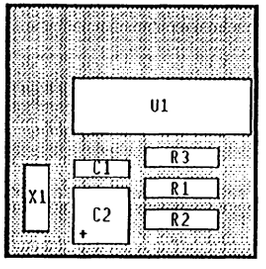
OLD VERSION

CIRCUIT BOARD A9
DC MOTOR DRIVER

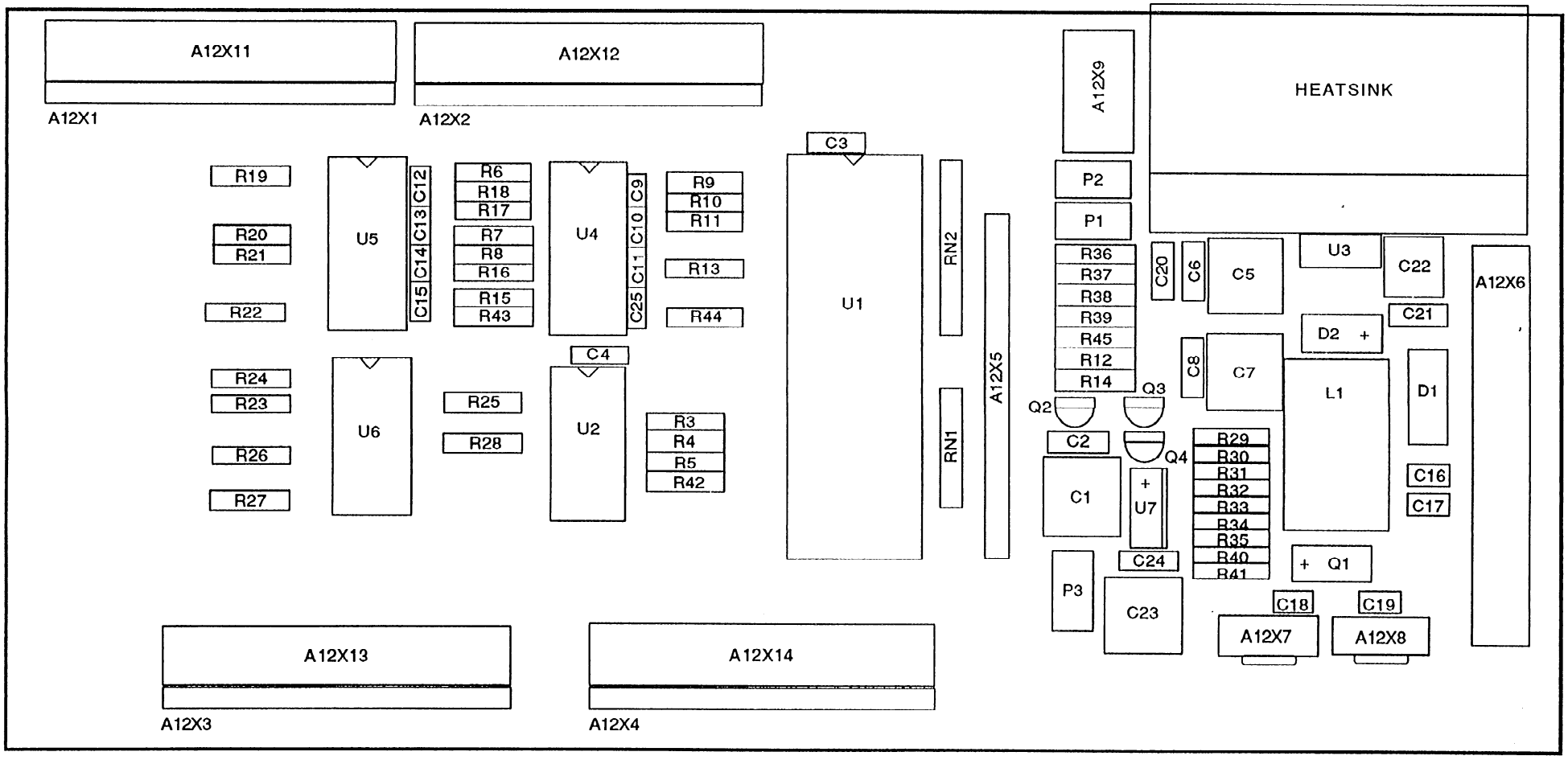


NEW VERSION

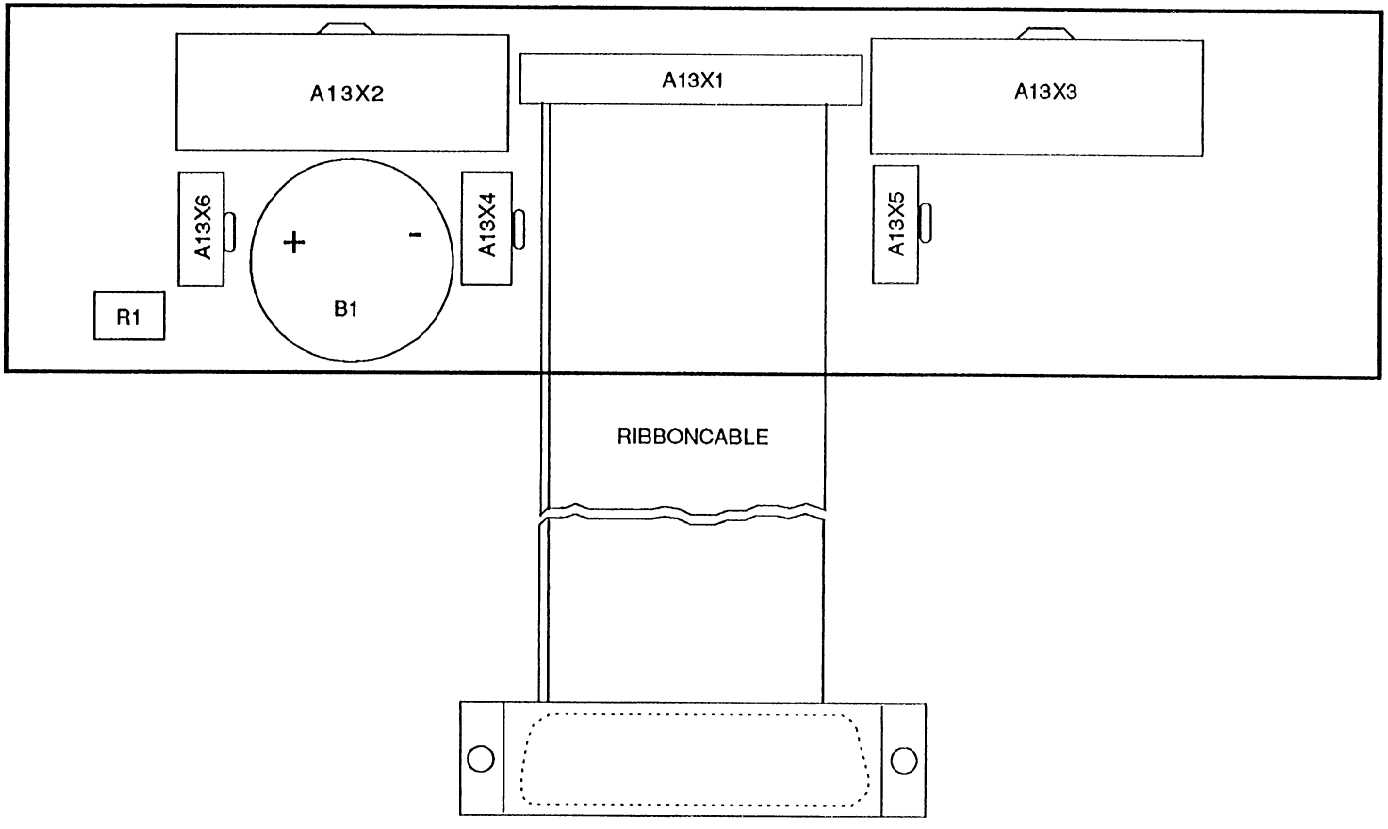
CIRCUIT BOARD A9
DC MOTOR DRIVER



CIRCUIT BOARD A10
ODOMETER

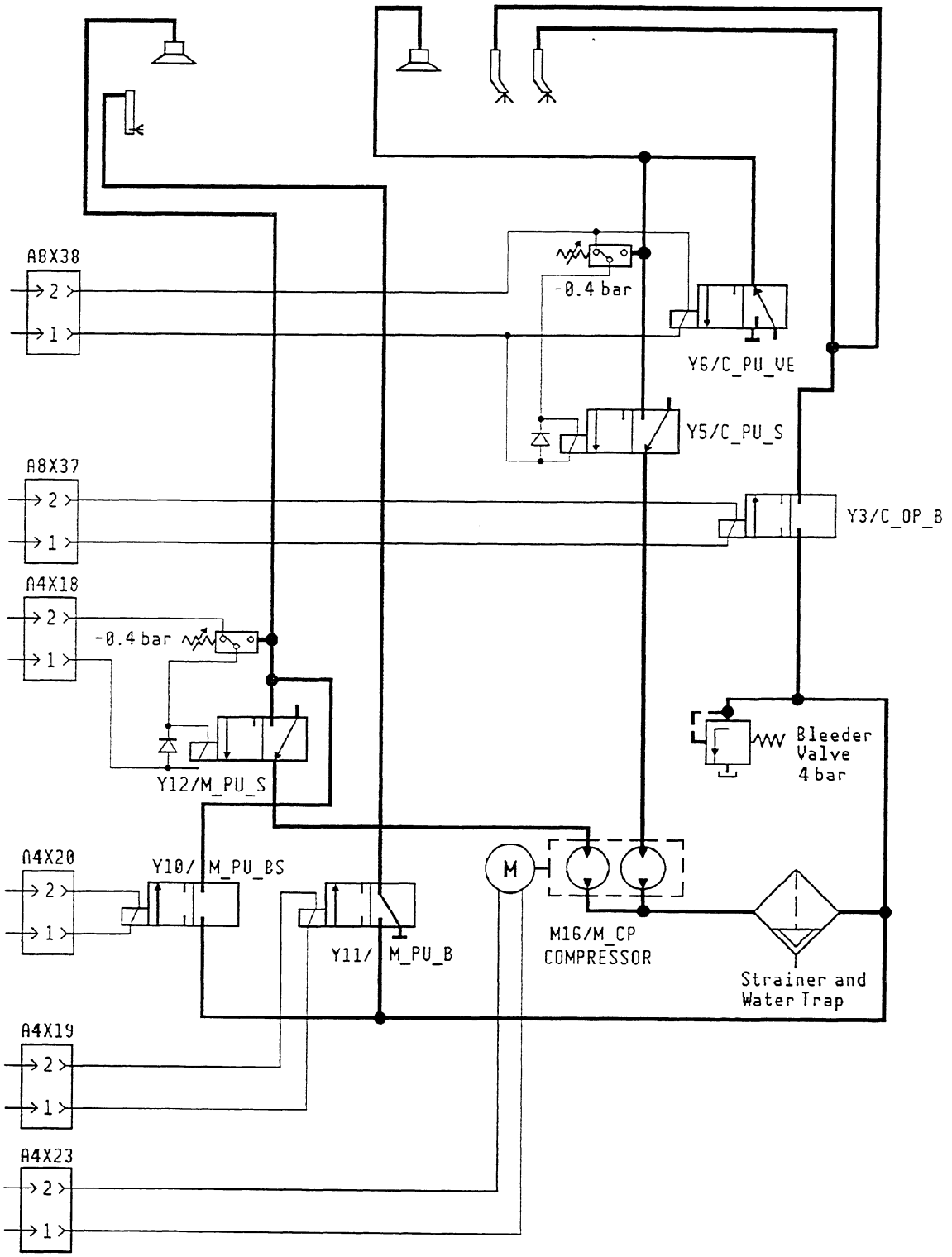


Circuit Board A12
DFF Interface

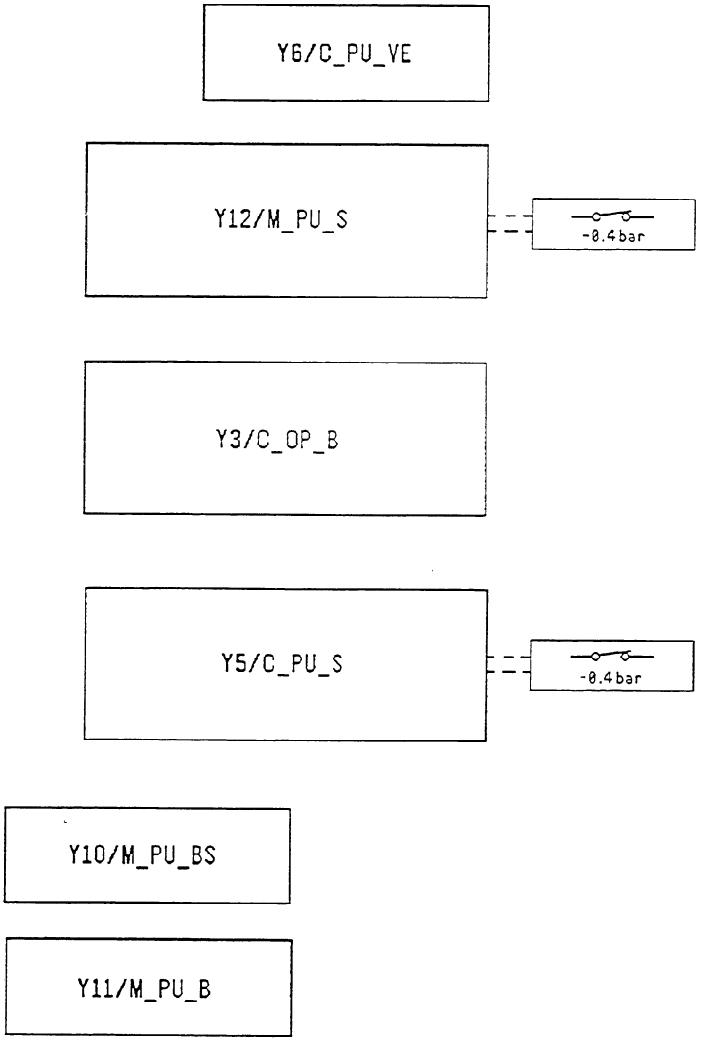


Circuit Board A13
DFF Distribution

5. PNEUMATIC


A8X38
2
1
-0.4 bar
Y6/C_PU_VE
Y5/C_PU_S
A8X37
2
1
Y3/C_OP_B
A4X18
2
1
-0.4 bar
Y12/M_PU_S
Bleeder
Valve
4 bar
A4X20
2
1
Y10/ M_PU_BS
Y11/ M_PU_B
M
M16/M_CP
COMPRESSOR
Strainer and
Water Trap
A4X19
2
1
A4X23
2
1

PNEUMATICS


Y6/C_PU_VE
Y12/M_PU_S
-0.4bar
Y3/C_OP_B
Y5/C_PU_S
-0.4bar
Y10/M_PU_BS
Y11/M_PU_B

PNEUMATICS

6. SIGNAL LIST

INPUT SIGNALS CASSETTE INTERFACE A3/1

FUNCTION CENTERING

SIGNAL NAME	SENSOR	PURPOSE
B_C_CE_C	B11/C_CE_CL CASSETTE CENTERED LEFT	The CASSETTE is centred when this signal is LOW. SENSORS "CASSETTE CENTERED LEFT" and "CASSETTE CENTERED RIGHT" are connected in line.
B_C_CE_C	B12/C_CE_CL CASSETTE CENTERED RIGHT	The CASSETTE is centred when this signal is LOW. SENSORS "CASSETTE CENTERED LEFT" and "CASSETTE CENTERED RIGHT" are connected in line.
B_C_CE_EC	B9/C_CE_EC CENTERING BARS CLOSED	This signal is LOW when a too small CASSETTE is between the CENTERING BARS and the CENTRE-ING BARS reached their innermost position.
B_C_CE_EO	B10/C_CE_EO CENTERING BARS OPENED	This signal is LOW when the CENTERING BARS are in their outermost position.
B_C_CE_L0	B13/C_CE_L CASSETTE LENGTH DETECTION	The CENTERING BARS move in until they are stopped by the CASSETTE (SENSORS "CASSETTE CENTERED LEFT" and "CASSETTE CENTERED RIGHT" are actuated). The amount of pulses (generated by the ODOMETER PCB A10/2) on the signal is used to calculate the CAS-SETTE LENGTH.
B_C_CE_L1	B13/C_CE_L CASSETTE LENGTH DETECTION	The signal is LOW when the CENTERING BARS are moving out. The signal is HIGH when the CENTERING BARS are moving in.

FUNCTION FRONT DOOR

SIGNAL NAME	SENSOR	PURPOSE
B_C_FD	B1/C_FD FRONT DOOR SWITCH	The signal is LOW as long as the FRONT DOOR is closed.

FUNCTION HOLDING FINGER

SIGNAL NAME	SENSOR	PURPOSE
B_C_HF_W0	B8/C_HF_W CASSETTE WIDTH DETECTION	The HOLDING FINGER moves in until it is stopped by the CASSETTE. During this time the ODOMETER PCB A10/1. generates pulses. The amount of pulses is used to calculate the CASSETTE WIDTH. The absence of pulses indicates that the HOLDING FINGER is stopped by the CASSETTE or by the END STOP and the MOTOR HOLDING FINGER is turned off.

SIGNAL NAME	SENSOR	PURPOSE
B_C_HF_W1	B8/C_HF_W CASSETTE WIDTH DETECTION	The signal is LOW when the HOLDING FINGER moves in. The signal is HIGH when the HOLDING FINGER moves out.

FUNCTION INPUT FLAP

SIGNAL NAME	SENSOR	PURPOSE
B_C_IF_EC	B4/C_IN_EC CASSETTE INPUT FLAP CLOSED	The signal is LOW when the CASSETTE INPUT FLAP is closed.
B_C_IF_EO	B3/C_IN_EO CASSETTE INPUT FLAP OPEN	The signal is LOW when the CASSETTE INPUT FLAP is open.

FUNCTION CASSETTE INPUT

SIGNAL NAME	SENSOR	PURPOSE
B_C_IN_EL	B5/C_IN_EL CASSETTE IN ENDSWITCH LEFT	If an ENDSWITCH is actuated by a CASSETTE, the corresponding signal goes LOW. To start CENTERING at least 2 END SWITCHES must be actuated.
B_C_IN_EM	B6/C_IN_EM CASSETTE IN ENDSWITCH MIDDLE	
B_C_IN_ER	B7/C_IN_ER CASSETTE IN ENDSWITCH RIGHT	
B_C_IN_R	B2/C_IN_R CASSETTE REGISTRATION	The signal goes LOW when the CASSETTE actuates the SENSOR. When a CASSETTE is pushed in by the Operator, the cycle is started.
B_C_IN_R2	B24/C_IN_R2 CASSETTE REGISTRATION 2	The signal goes LOW when the CASSETTE interrupts the SENSOR. The purpose of this SENSOR is to avoid error C74 if SENSOR B2 is triggered by hand or to start a cycle when the CASSETTE is pulled out and SENSOR B2 becomes actuated.

FUNCTION OPEN CASSETTE

SIGNAL NAME	SENSOR	PURPOSE
B_C_OP_P0	B14/C_OP_P CASSETTE OPENER POSITION	The ODOMETER PCB A12 generates pulses as long as the OPENER BRACKET moves up or down. The pulses are used to detect the LOWER-, the BLOW- and the HOME-POSITION of the OPENER BRACKET.

SIGNAL NAME	SENSOR	PURPOSE
B_C_OP_P1	B15/C_OP_P CASSETTE OPENER POSITION	The signal is LOW when the OPENER BRACKET moves up. The signal is HIGH when the OPENER BRACKET moves down.
B_C_OP_RO	B16/C_OP_RO CASSETTE REALLY OPEN	The signal is LOW when the CASSETTE is really open.

FUNCTION FILM PICKUP FROM CASSETTE

SIGNAL NAME	SENSOR	PURPOSE
B_C_PU_EF	B17/C_PU_EF CASSETTE FILM PICK UP FRONT	The signal is LOW when the CASSETTE SUCKER BAR CARRIAGE is in the FRONT POSITION.
B_C_PU_ER	B18/C_PU_ER CASSETTE FILM PICK UP REAR	The signal is HIGH when the CASSETTE SUCKER BAR CARRIAGE is in the REAR POSITION.
B_C_PU_T	B19/C_PU_T SUCKER BAR TILT	The signal is LOW when the CASSETTE SUCKER BAR is tilted. The signal is used as an indicator if the FILM in the CASSETTE is picked up or not by the CASSETTE SUCKER BAR.
B_C_PU_VO	B20/C_PU_VO *VACUUM* OFF	The FILM is picked up from the CASSETTE and transported into the CONVEYOR. As soon as it enters the CONVEYOR the SENSOR "VACUUM OFF" is actuated and the signal goes LOW. A short time later the vacuum is turned off to release the FILM from the SUCKERS.

FUNCTION RESET

SIGNAL NAME	SENSOR	PURPOSE
B_C_RESET	PCB A8 S1 RESET	When S1 is pressed the signal goes LOW. This resets the SLAVE PROCESSOR PCB A3/1.

FUNCTION FILM TYPE 2

SIGNAL NAME	SENSOR	PURPOSE
B_C_T2 _L	B22/C_T2_L FILM TYPE 2	The signal is LOW when a TYPE 2 CASSETTE is detected. (C3 CASSETTE)
B_C_T2_R	B22/C_T2_R FILM TYPE 2	The signal is LOW when a TYPE 2 CASSETTE is detected. (C1 CASSETTE)

FUNCTION INTERLOCK

SIGNAL NAME	SENSOR	PURPOSE
B_C_TC_I	B23/C_TCI TOP COVER INTERLOCK	The signal is LOW as long as the TOP COVER is closed

OUTPUT SIGNALS CASSETTE INTERFACE A3/1

FUNCTION CONTROL SIGNAL

SIGNAL NAME	DESTINATION	PURPOSE
G_C_SP_S	PCB A8 DS1	This signal turns the red LED on PCB A8 on or off. **LED (red) is off** This may occur after power up only if a RAM-test failure is detected or the bootstrap-software is faulty. **LED (red) is blinking continuously** In this case only the bootstrap software is running. This happens during software load from the Lap Top. **LED (red) displays a rhythmic blinking** In this case a fatal error occurred. A "normal" error code will be displayed too. If the problem cannot be solved try to record the blinking hex error code and pass it on to your local specialist. The problem can then be analysed in the factory. For example the LED blinks as follows: The asterisks means the LED is on. * 0.5 sec pause * * * * * * * 1 sec pause * 0.5 sec pause * * * * * * * and so on The 2 digit hex code for this example is 17

FUNCTION CASSETTE CENTERING

SIGNAL NAME	DESTINATION	PURPOSE
M_C_CE_C	M4/C_CE CASSETTE CENTERING	When this signal goes LOW the CASSETTE CENTERING becomes closed.
M_C_CE_O	M4/C_CE CASSETTE CENTERING	When this signal goes LOW the CASSETTE CENTERING becomes opened.

FUNCTION HOLDING FINGER

SIGNAL NAME	DESTINATION	PURPOSE
M_C_HF_F	M3/C_HF HOLDING FINGER	A LOW turns on the MOTOR HOLDING FINGER forward. After the CASSETTE is centred the HOLDING FINGER drives the CASSETTE to the END STOP. As long as the HOLDING FINGER is moving COUNT PULSES are generated by PCB A10 to calculate the CASSETTE WIDTH. The absence of pulses indicates that the CASSETTE is at the END STOP and the MOTOR is turned off.
M_C_HF_R	M3/C_HF HOLDING FINGER	A LOW turns on the MOTOR HOLDING FINGER in reverse. The motor is turned off as soon as it reaches

the END STOP, because PCB A10 stops generating COUNT PULSES immediately.

FUNCTION INPUT FLAP

SIGNAL NAME	DESTINATION	PURPOSE
M_C_IF	M1/C_IF CASS. INPUT FLAP	A LOW turns on the MOTOR CASSETTE INPUT FLAP. To avoid FILM FOGGING this FLAP has to be closed when a CASSETTE is in the ML300. The MOTOR turns only in one direction and is stopped by the SENSOR "CASSETTE INPUT FLAP OPEN" or "CASSETTE INPUT FLAP CLOSED".

FUNCTION CASSETTE INPUT

SIGNAL NAME	DESTINATION	PURPOSE
M_C_IN_F	M2/C_IN CASSETTE INPUT	The MOTOR CASSETTE INPUT is turned on in forward by a LOW. The CASSETTE is transported until 2 of 3 CASSETTE IN END SWITCHES are actuated.
M_C_IN_R	M2/C_IN CASSETTE INPUT	The MOTOR CASSETTE INPUT is turned on in reverse by a LOW.

FUNCTION OPEN CASSETTE

SIGNAL NAME	DESTINATION	PURPOSE
M_C _OP_F	M5/C_OP CASSETTE OPENING	A LOW turns on the MOTOR CASSETTE OPENING and moves the OPENER BRACKET fully up. The MOTOR is turned off, after SENSOR "CASSETTE OPENER OPEN" is reached.
M_C_OP_R	M5/C_OP CASSETTE OPENING	A LOW turns on the MOTOR CASSETTE OPENING and moves the OPENER BRACKET fully down. The MOTOR is turned off after the correct amount of pulses is generated by the ODOMETER PCB A12. There is no END SWITCH for the LOWER OPENER BRACKET POSITION.

FUNCTION FILM PICKUP FROM CASSETTE

SIGNAL NAME	DESTINATION	PURPOSE
M_C_PU_F	M6/C_PU CASS. FILM PICK UP	The FILM PICK UP MOTOR is turned on in forward by a LOW. The MOTOR is turned off when the SENSOR "CASSETTE FILM PICK UP FRONT" is reached.
M_C_PU_R	M6/C_PU CASS. FILM PICK UP	The FILM PICK UP MOTOR is turned on in reverse by a LOW. The MOTOR is turned off when the SENSOR "CASSETTE FILM PICK UP REAR" is reached.

SIGNAL NAME	DESTINATION	PURPOSE
M_C_PU_RO	M7/C_PU_RO ROLLER MOTOR	The ROLLER MOTOR is in the CONVEYOR and transports the FILM to the FILM CHUTE. It is turned on by a LOW.

FUNCTION FRONT DOOR

SIGNAL NAME	DESTINATION	PURPOSE
Y_C_FD	Y1/C_FD_L Y2/C_FD_R FRONT DOOR SOLENOID	A LOW energises both FRONT DOOR SWITCHES and the FRONT DOOR can be opened.

FUNCTION OPEN CASSETTE

SIGNAL NAME	DESTINATION	PURPOSE
Y_C_OP	Y4/C_OP CASSETTE OPENER	A LOW energises the rotary OPENER SOLENOID. The SOLENOID is energised with maximum current and a short time later the current is reduced. This current control is done by IC U41.
Y_C_OP_B	Y3/C_OP_B CASSETTE BLOWING	A LOW energises the CASSETTE BLOWING SOLENOID. The signal goes LOW when the CASSETTE OPENER BRACKET moves upward and when it is 18 steps away from its lowest position. The CASSETTE OPENER MOTOR stops and air is blown into the CASSETTE to separate the FILM from the LID SCREEN.

FILM PICKUP FROM CASSETTE

SIGNAL NAME	DESTINATION	PURPOSE
Y_C_PU	Y7/C_PU TILTING SUCKER BAR	A LOW energises the TILT IN SUCKER BAR SOLENOID (WHITNEY MECHANISM). The SOLENOID is energised with maximum current and a short time later the current is reduced. This current control is done by IC U40.
Y_C_PU_S	Y5/C_PU_S1 Y6/C_PU_S2 CASSETTE SUCKING	A LOW energises the CASSETTE SUCKING SOLENOID VALVE. The VACUUM is now built up in the SUCKERS and the FILM is picked up from the BOTTOM SCREEN of the CASSETTE.

INPUT SIGNALS MAGAZINE INTERFACE A3/2

FUNCTION MAGAZINE OPENING

SIGNAL NAME	SENSOR	PURPOSE
B_M_OP_EC	B37/M_OP_EC MAGAZINE CLOSING END SWITCH	The MAGAZINE OPENER is in the bottom position when this signal is LOW.
B_M_OP_EO	B36/M_OP_EO MAGAZINE OPENING END SWITCH	The MAGAZINE OPENER is in the upper position when this signal is LOW. This means all three MAGAZINES are open.

FUNCTION PROCESSOR INTERFACE

SIGNAL NAME	SENSOR	PURPOSE
B_M_PI_B	B35/M_PI_B FILM IN INTERFACE BOTTOM	This signal is LOW when a FILM is at the bottom of the FILM CHUTE.
B_M_PI_F	B33/M_PI_F INTERFACE FLAP CLOSED END SWITCH	A LOW indicates that the INTERFACE FLAP in the FILM CHUTE is closed.
B_M_PI_R	B34/M_PI_R FILM RELEASE CLOSED END SWITCH	A LOW indicates that the FILM RELEASE in the FILM CHUTE is closed. The FILM RELEASE is open when it is possible to transport the FILM into the PROCESSOR.

FUNCTION FILMPOCKET POSITION

SIGNAL NAME	SENSOR	PURPOSE
B_M_PO_ES	B31/M_PO_ES END SWITCH	This signal is LOW when the FILMPOCKET is in the uppermost or lowermost position.
B_M_PO_HP	B30/M_PO_HP HOME POSITION.	This signal is LOW when the FILMPOCKET is in the HOME POSITION. This position is close to MAGAZINE LEVEL 2. The FILMPOCKET is always parked here when in standby
B_M_PO_ML	B32/M_PO_ML MAGAZINE LEVEL	This signal is LOW when the FILMPOCKET is at MAGAZINE LEVEL 1,2,3 or at CASSETTE LEVEL.
B_M_PO_DS	B59/M_PU_DS DOUBLE SHEET DETECTOR	This signal goes LOW when there is more than 1 FILM between the DETECTOR ROLLERS.

FUNCTION FILM PICKUP FROM MAGAZINE

SIGNAL NAME	SENSOR	PURPOSE
B_M_PU_E	B60/M_PU_E MAGAZINE EMPTY	This signal goes LOW when the selected MAGAZINE is found empty.
B_M_PU_EF	B56/M_PU_EF MAGAZINE FILM PICK UP END SWITCH FRONT	This signal goes LOW when the FILMPOCKET SUCKER BAR ARM is rotated to the fully upright position.
B_M_PU_ER	B58/M_PU_ER MAGAZINE FILM PICK UP END SWITCH REAR	This signal goes LOW when the FILMPOCKET SUCKER BAR ARM is rotated fully out of the MAGAZINE and fully down.
B_M_PU_FS	B61/M_PU_FS FILM AT SUCKER BAR	This signal goes LOW when the MAGAZINE SUCKER BAR reaches the top FILM in the MAGAZINE. it stays LOW as long as a FILM is at the SUCKERS.
B_M_PU_M	B57/M_PU_M MAGAZINE FILM PICK UP MIDDLE POSITION	this signal goes LOW when the MAGAZINE SUCKER BAR is rotated out of the MAGAZINE and reaches an approximately horizontal position.

FUNCTION MAGAZINE SIZE DETECTION

SIGNAL NAME	SENSOR	PURPOSE
B_M_SD_B1 B_M_SD_B2 B_M_SD_B3 B_M_SD_B4 B_M_SD_B5	See SENSORS on CIRCUIT BOARDS A6/1, A6/2, A6/3	These signals are used to decode the MAGAZINE SIZE.
B_M_SD_CD	See SENSORS on CIRCUIT BOARDS A6/1, A6/2, A6/3	This signal is used to detect if the selected MAGAZINE is closed.

OUTPUT SIGNAL MAGAZINE INTERFACE A3/2

FUNCTION FILM PICKUP FROM MAGAZINE

SIGNAL NAME	DESTINATION	PURPOSE
G_M_PU_E	B60/M_PU_E MAGAZINE EMPTY SENSOR	This signal is used to turn on and off the MAGAZINE EMPTY SENSOR. The SENSOR is pulsed to avoid FILM FOGGING. This signal turns the red LED on PCB A8 on or off.

FUNCTION MAGAZINE SIZE DETECTION

SIGNAL NAME	DESTINATION	PURPOSE
G_M_SD_L1 G_M_SD_L2 G_M_SD_L3	PCB A6/1	These signals are the SELECT LINES for the three MAGAZINE SENSE BOARDS. They are not LOW at the same time.

FUNCTION CONTROL SIGNAL

SIGNAL NAME	DESTINATION	PURPOSE
G_M_SP_S	DS1 on PCB A4	This signal turns the red LED on PCB A4 on or off. **LED (red) is off** This may occur after power up only if a RAM-test failure is detected or the bootstrap-software is faulty. **LED (red) is blinking continuously** In this case only the bootstrap software is running. This happens during software load from the Lap Top. **LED (red) displays a rhythmic blinking** In this case a fatal error occurred. A "normal" error code will be displayed too. If the problem cannot be solved try to record the blinking hex error code and pass it on to your local specialist. The problem can then be analysed in the factory. For example the LED blinks as follows: The asterisks means the LED is on. * 0.5 sec pause * * * * * * * 1 sec pause * 0.5 sec pause * * * * * * * and so on The 2 digit hex code for this example is 17

FUNCTION COMPRESSOR

SIGNAL NAME	DESTINATION	PURPOSE
M_M_CP	M16/M_CP COMPRESSOR	If this signal goes LOW the COMPRESSOR is turned on. The COMPRESSOR is used to generate pressure and vacuum.

FUNCTION MAGAZINE OPENING

SIGNAL NAME	DESTINATION	PURPOSE
M_M_OP_C	M14/M_OP MAGAZINE OPENER	If this signal goes LOW the MAGAZINE OPENER MOTOR is turned on to close all three MAGAZINES.
M_M_OP_O	M14/M_OP MAGAZINE OPENER	If this signal goes LOW the MAGAZINE OPENER MOTOR is turned on to open all three MAGAZINES.

FUNCTION PROCESSOR INTERFACE

SIGNAL NAME	DESTINATION	PURPOSE
M_M_PI_EN	PCB A4 U42 CONTROLLER FOR STEPPER MOTOR PROC. INTERFACE	If this signal is LOW, the outputs of U42 will be enabled. If this signal is HIGH outputs A, B, C, D, INH1 and INH2 of U42 are LOW.
M_M_PI_F	M11/M_PI_F INTERFACE FLAP	If this signal goes LOW MOTOR M11 is turned on and the INTERFACE FLAP in the FILM CHUTE will be closed.
M_M_PI_R	M12/M_PI_R FILM RELEASE	A LOW turns on MOTOR M12. This allows the FILM to leave the FILM CHUTE and to enter the PROCESSOR INTERFACE.
M_M_PI_ST	PCB A4 U42 CONTROLLER FOR STEPPER MOTOR PROC. INTERFACE	The STEPPER MOTOR will make 1 step for every LOW puls.
M_M_PO_CH	PCB A4 U45 CONTROLLER FOR STEPPER MOTOR FILM POCKET	A LOW enables the chopping of the outputs A, B, C and D.
M_M_PO_DI	PCB A4 U45 CONTROLLER FOR STEPPER MOTOR FILM POCKET	This signal controls the clockwise/counter-clockwise direction of the STEPPER MOTOR.
M_M_PO_EN	PCB A4 U45 CONTROLLER FOR STEPPER MOTOR FILM POCKET	If this signal is LOW the outputs of U42 will be enabled. If this signal is HIH outputs A, B, C, D, INH1 and INH2 of U45 are LOW.

M_M_PO_I	PCB A4 U45 CONTROLLER FOR STEPPER MOTOR FILMPOCKET	This signal is used to control the motor current. During standby the FILMPOCKET STEPPER MOTOR is energised by a reduced HOLDING CURRENT. During OPERATION the current becomes increased.
M_M_PO_MO	PCB A4 U45 CONTROLLER FOR STEPPER MOTOR FILMPOCKET	If this signal is LOW the HALF-STEP-MODE of the CONTROLLER U45 is selected.
M_M_PO_ST	PCB A4 U45 CONTROLLER FOR STEPPER MOTOR FILMPOCKET	The STEPPER MOTOR will make 1 step for every LOW puls.

FUNCTION FILM PICKUP FROM MAGAZINE

SIGNAL NAME	DESTINATION	PURPOSE
M_M_PU_F	M15/M_PU FILM PICKUP MAGAZINE	When this signal is LOW MOTOR M15 is turned on forward and the MAGAZINE SUCKER BAR is rotated into the MAGAZINE.
M_M_PU_R	M15/M_PU FILM PICKUP MAGAZINE	When this signal is LOW MOTOR M15 is turned on reverse and the MAGAZINE SUCKER BAR is rotated out of the MAGAZINE.
Y_M_PU	PCB A5 U5	When this signal is LOW the SOLENOID Y14/PU MAGAZINE SUCKER BAR TILTING is energised.
Y_M_PU_B	Y11/M_PU_B MAGAZINE BLOWING	When this signal is LOW, SOLENOID VALVE Y11 is energised and air is blown into the MAGAZINE to separate the FILMS.
Y_M_PU_BS	Y10/M_PU_BS MAGAZINE BLOW INTO SUCKERS	When this SIGNAL is LOW SOLENOID VALVE Y10 is energised and air is blown into the SUCKERS of the MAGAZINE SUCKER BAR, to separate the FILM from the SUCKERS, when the FILM is put into the CASSETTE.
Y_M_PU_DS	Y15/M_PU_DS DOUBLE SHEET DETECTOR	When this signal is LOW SOLENOID Y15 is energised and the spring loaded DOUBLE SHEET DETECTOR ASSY moves forward to the MAGAZINE.
Y_M_PU_S	Y12/M_PU_S MAGAZINE SUCKING	When this signal is LOW SOLENOID VALVE Y12 is energised. Vacuum can now be built up in the MAGAZINE SUCKERS to pick up a fresh FILM.

DFF INPUT SIGNALS

SIGNAL NAME	SENSOR	PURPOSE
B_DFF_DR_L	B62/D_DR_L DRAWER OPEN SWITCH LEFT	SENSORS B62 and B63 are used to sense if the DRAWER is closed correctly. The signals are High, when the DRAWER is open and Low when the DRAWER is closed.
B_DFF_DR_R	B63/D_DR_R DRAWER OPEN SWITCH RIGHT	
DFF_PRESENT		The signal is Low, when the DFF is connected to the XML300.

DFF OUTPUT SIGNALS

SIGNAL	DESTINATION	PURPOSE
RED/GREEN	G01/D_ST_GR STATUS LED DFF	The LED is green, when the DFF can accept a FILM. The LED is red, as long as the XML300 is busy.
Y_DFF_DR_SL	Y20/D_DR_SL DRAWER SOLENOID LEFT	Both SOLENOIDS are energised when the DFF can accept a FILM.
Y_DFF_DR_SR	Y21/D_DR_SR DRAWER SOLENOID RIGHT	
DFF_BUZZER	DFF BUZZER	The BUZZER sounds after the integrated 270RA PROCESSOR detected the trailing edge of the film from the DFF.

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